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THESIS

**U.S. NUCLEAR POLICY, STRATEGY, AND FORCE
STRUCTURE: INSIGHTS AND ISSUES FROM THE 1994,
2001, AND 2010 NUCLEAR POSTURE REVIEWS**

by

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September 2014

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REVIEWS**

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ABSTRACT

This thesis examines the main decisions taken in the 1994, 2001, and 2010 Nuclear Posture Reviews regarding U.S. nuclear capabilities and declaratory strategy, and the policy debates that followed the publication of each NPR, focusing on deterrence and other objectives of U.S. national security strategy. It analyzes and compares the post-Cold War NPRs to understand how each administration attempted to shape and direct policy, and how key issues were framed and addressed by policy makers and commentators. The concluding chapter identifies continuities and discontinuities in the NPRs, and considers how the roles of nuclear weapons, deterrence theory, and force structure have been addressed since the end of the Cold War. Continuities across the NPRs include the reduced role of the U.S. nuclear arsenal, deterrence objectives keyed to contemporary threats, nuclear arms control with Russia, and a force structure that emphasizes diverse capabilities, including non-nuclear offensive and defensive assets. Fundamental issues concerning nuclear deterrence requirements for U.S. national security nonetheless remain unresolved, owing in part to fundamentally different policy views and priorities. U.S. deterrence objectives have remained fairly stable; definitions of deterrence requirements have changed markedly in each post-Cold War administration, with increasingly lower nuclear force levels.

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LIST OF ACRONYMS AND ABBREVIATIONS

DOD	Department of Defense
ICBM	intercontinental ballistic missile
MAD	mutual assured destruction
MIRV	Multiple, Independently Targeted Reentry Vehicle
NATO	North Atlantic Treaty Organization
NPR	nuclear posture review
NSNF	non-strategic nuclear forces
NSS	National Security Strategy
QDR	Quadrennial Defense Review
SDV	strategic delivery vehicle
SIOP	single integrated operational plan
SLBM	sea-launched ballistic missile
SSBN	Ship Submersible Ballistic Nuclear
START	Strategic Arms Reduction Treaty
USSTRATCOM	United States Strategic Command
WMD	weapons of mass destruction

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This work is dedicated to Susi.

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I. INTRODUCTION

A. MAJOR RESEARCH QUESTION

On three separate occasions since the end of the Cold War in 1989–1991, the United States has conducted formal reviews of its nuclear posture. The Clinton Administration, the Bush Administration, and the Obama Administration prepared nuclear posture reviews (NPRs) and presented findings to Congress in 1994, 2001, and 2010, respectively. The NPRs are important opportunities for administrations to define nuclear policy—at the declaratory level—and its relationship to national security strategy.¹ Three post–Cold War administrations have completed three NPRs setting out broad guidelines for the role of nuclear weapons in national security and for the size and composition of the nuclear forces (two of the key elements of force posture).

The primary research question of this thesis is: How has U.S. nuclear strategy regarding the requirements of deterrence and other U.S. national security objectives changed since the end of the Cold War as illustrated through the three nuclear posture reviews? This thesis will examine the main decisions taken in the 1994, 2001, and 2010 Nuclear Posture Reviews regarding U.S. nuclear capabilities and declaratory strategy, and the policy debates that followed the publication of each NPR, focusing on deterrence and other objectives of U.S. national security strategy.

The post–Cold War period has seen numerous nuclear force reviews, reports, and studies. Scholars and teams of analysts from think tanks have advanced policy recommendations. Central to all of this work have been the NPRs. According to Hans Kristensen, Robert Norris, and Ivan Oelrich, since the end of Cold War, the most important official (i.e., under the direction of the Department of Defense) defense reviews that impact nuclear policy have been the NPRs.² The NPRs reviewed and made

¹ Courtney N. Stewart, “Should the Nuclear Posture Review be Conducted More Frequently?” in *A Collection of Papers from the 2010 Nuclear Scholars Initiative*, ed. Mark Jansson (Washington, DC: Project on Nuclear Issues, Center for Strategic and International Studies, 2010), 39.

² Hans M. Kristensen, Robert S. Norris, and Ivan Oelrich, “From Counterforce to Minimal Deterrence: A New Nuclear Policy on the Path Toward Eliminating Nuclear Weapons,” *Occasional Paper*, no. 7, Federation of American Scientists/Natural Resources Defense Council, April 2009, 47.

recommendations affecting all dimensions of nuclear policy, but they were primarily (and most importantly) indications of declaratory policy. Key policy determinations, such as the recommendations arrived at in the NPRs, shape policy debates that influence thinking about nuclear weapons in national security.

B. IMPORTANCE

No comprehensive comparative study of the post–Cold War NPRs has been published. Since the end of the Cold War and the breakup of the Soviet Union, comprehensive discussions of future U.S. nuclear policy, strategy, and force structure have been limited. Discussions about nuclear policy are often arguments over the merits of various policy positions or prescriptions, or focused on narrow conceptions of broader theories, like minimum deterrence or tailored deterrence. At the same time that issues relating to nuclear policy and strategy have faded in importance in the eyes of the American public and the Congress since the end of the Cold War, policy debates among analysts and experts have been intense at times. Joanna Spear described the realm of nuclear weapons policy as a “high–stakes game,” and observed that the decisions made through the NPRs may influence government programs and scientific activity for a decade or more.³ Glenn Buchan argued in 2002 around the time of the 2001 Bush administration NPR that a reassessment of nuclear strategy was “long overdue.”⁴ For Josiane Gabel, writing in 2004–2005, the time for a comprehensive debate over U.S. nuclear weapons policy was “overdue.”⁵ In her final major work, published posthumously in 2012, Thérèse Delpech called for a renaissance in nuclear thinking.⁶ A comparative study that informs future policy is important because nuclear policy is contentious, and there is little consensus across the various competing policy camps. The

³ Joanna Spear, “More Business as Usual? The Obama Administration and the Nuclear Posture Review,” *Contemporary Security Policy* 32, no.1 (2011): 242.

⁴ Glenn Buchan, “Nuclear Weapons and U.S. National Security: Strategy for a New Century,” in *Strategic Appraisal: United States Air and Space Power in the 21st Century*, eds. Zalmay Khalilzad and Jeremy Shapiro (Santa Monica, CA: RAND, 2002), 226.

⁵ Josiane Gabel, “The Role of U.S. Nuclear Weapons after September 11,” *Washington Quarterly* 28, no. 1 (2004–2005): 181.

⁶ Thérèse Delpech, *Nuclear Deterrence in the 21st Century: Lessons from the Cold War for a New Era of Strategic Piracy* (Santa Monica, CA: RAND, 2012), 11.

overall purpose of this study is to advance understanding of prudent and effective policy, strategy, and force structure, and to evaluate the policy debates and assess the options for future U.S. nuclear force posture. This research can directly inform debates in the nuclear weapons policy analysis community.

The overlapping fields of nuclear strategy and deterrence strategy have been at least partially neglected in the United States since the 1980s (and particularly since the end of the Cold War) as the focus of attention of scholars and analysts has shifted to specific nonproliferation and arms control issues.⁷ Colin S. Gray and Keith Payne wrote in 1980 that strategy may be considered in a nuclear war context and indeed to not appreciate this idea is “to insure by choice a nuclear apocalypse if deterrence fails.”⁸ On the peculiar widespread inattention to nuclear weapons issues, Amy Woolf observed in 2007 that nuclear weapons policy issues are of real concern to few outside a narrow specialist community.⁹ In 2011, James Blackwell observed that the U.S. Department of Defense maintained only one outdated doctrinal manual on campaigns encompassing nuclear weapons, the Air Force Doctrine Document (AFDD) 3-72, *Nuclear Operations*.¹⁰ The number of publications devoted to nuclear strategic topics (as opposed to more narrow, technical topics such as how warhead caps should be defined or how best to sustain effective stockpile stewardship in the absence of explosive nuclear testing) has dwindled since the end of the Cold War, and the number of scholars paying primary attention to nuclear strategic issues has gradually declined.

The number of individuals paying serious, sustained, scholarly attention to nuclear strategy has always been small. There have been serious commentators and

⁷ But consider some noteworthy post-1980 work: Colin S. Gray, *Nuclear Strategy and National Style* (Lanham, MD: Hamilton Press, 1986); Colin S. Gray, *Nuclear Strategy and Strategic Planning* (Philadelphia: Foreign Policy Research Institute, 1984); Keith B. Payne, “Post-Cold War Requirements for U.S. Nuclear Deterrence Policy,” *Comparative Strategy* 17, no. 3 (1998): 227–277; Richard Ned Lebow and Janice Gross Stein, “Deterrence and the Cold War,” *Political Science Quarterly* 110, no. 2 (1995): 157–181; and Lawrence Freedman, *The Evolution of Nuclear Strategy*, 3rd ed. (London: Palgrave Macmillan, 2003).

⁸ Colin S. Gray and Keith Payne, “Victory is Possible,” *Foreign Policy* 39 (Summer 1980): 20, 26.

⁹ Amy F. Woolf, “Congress and U.S. Nuclear Weapons: Review and Oversight of Policies and Programs,” *Nonproliferation Review* 14, no. 3 (2007): 513–514.

¹⁰ James Blackwell, “Deterrence at the Operational Level of War,” *Strategic Studies Quarterly* 5, no. 2 (2011): 37.

episodic commentators (the latter prompted to publish by an upcoming or recent policy event). Serious commentators have continued working core nuclear strategy and deterrence issues without significant disruption. Newer work that deserves scrutiny has been done by serious commentators such as Matthew Kroenig and Erik Gartzke.¹¹

In the early to mid-1980s, nuclear strategic issues were regularly discussed in specialized journals like *International Security* and *Journal of Conflict Resolution*, as well as in more general publications such as *Foreign Affairs* and *World Politics*. A good number of monographs were published during this same period by writers such as Richard Betts, Robert Jervis, Janne Nolan, Scott Sagan, and Stephen Walt.¹² Since 1991, discussions of nuclear strategic issues have gravitated more to the pages of the *Bulletin of the Atomic Scientists*, *Arms Control Today*, and *The Nonproliferation Review*, reflecting a growing focus on nonproliferation and disarmament issues, and to research institute and think tank publications rather than mainstream publications. A smaller stream of publications on serious policy and strategy topics has continued in *Comparative Strategy* and *Survival*, for example, despite the general shift away from nuclear strategy and nuclear weapons policy. Publications and wider interest in nuclear strategic issues have spiked during periods when an NPR is in progress and following its completion. These observations are based in part on the author's survey of the scholarly literature.

Public discussion about nuclear policy has tended to center on issues related to force levels (such as total treaty-accountable warheads) and force composition (land-based, sea-based, and bomber-delivered systems). The contours of more serious policy

¹¹ Matthew Kroenig, "Think Again: American Nuclear Disarmament," *Foreign Policy* 202 (September–October 2013): 43–49; Erik Gartzke and Dong-Joon Jo, "Bargaining, Nuclear Proliferation, and Interstate Disputes," *Journal of Conflict Resolution* 53, no. 2 (2009): 209–233; Erik Gartzke and Matthew Kroenig, "Nuclear Posture, Nonproliferation Policy, and the Spread of Nuclear Weapons," *Journal of Conflict Resolution* 58, no. 3 (2014): 395–401; Erik Gartzke and Matthew Kroenig, "A Strategic Approach to Nuclear Proliferation," *Journal of Conflict Resolution* 53, no. 2 (2009): 151–160.

¹² Richard K. Betts, *Nuclear Blackmail and Nuclear Balance* (Washington, DC: Brookings Institution, 1987); Robert Jervis, *The Illogic of American Nuclear Strategy* (Ithaca, NY: Cornell University Press, 1984); Scott Douglas Sagan, *Moving Targets: Nuclear Strategy and National Security* (Princeton, NJ: Princeton University Press, 1990); Janne E. Nolan, *Guardians of the Arsenal: The Politics of Nuclear Strategy* (New York: Basic Books, 1989); Stephen M. Walt, "The Renaissance of Security Studies," *International Studies Quarterly* 35, no. 2 (1991): 211–239. It should be noted that the works listed here represent a more traditional balance-of-power (or terror) perspective but that not all authors at the time ascribed to that perspective.

discussion have remained remarkably similar over time, including the meaning, role, and requirements for deterrence, and the value of deterrence. At least for some commentators, debates about nuclear strategy and posture since 1991 have been imbalanced, incomplete, and at least partially ineffective. Clark Murdock referred in 2008 to what appeared to be an “allergy” to anything nuclear by policy makers after the Cold War; he argued that while there were narrow debates about specific programs, such as research about the Robust Nuclear Earth Penetrator (RNEP), there were no broad debates about nuclear strategy or the role of nuclear weapons in national security strategy in Washington.¹³ Discussions about force posture that devolve to simplistic arguments over how many warheads are necessary for deterrence are among the least helpful for understanding the significance of nuclear weapons in national security strategy. More complete discussions of nuclear weapons policy and strategy would focus on the role, value, and requirements for deterrence. Important force structure issues concerning size, composition, readiness, modernization, and other issues have yet to be resolved. The resolution of central force structure issues can improve the internal consistency and effectiveness of policy, allowing for the effective retention of deterrence capability with a safe, secure, and reliable nuclear arsenal.

C. PROBLEMS AND HYPOTHESES

The primary research question is focused on the post–Cold War NPRs and how each report defined the role of nuclear weapons in national security. The broader question of what U.S. nuclear strategy should be in the current and future security environment is contentious, given the differing views and assumptions of various policy advocates about the minimum force size and effective force composition for deterrence. There are sharp differences in opinion among analysts over nuclear policy issues, including, to name only a few tied to the 2010 NPR, the urgency of going to zero (that is, abolishing the nuclear arsenal), how weapon stockpiles should be managed, and whether declaratory policy

¹³ Clark A. Murdock, *The Department of Defense and the Nuclear Mission in the 21st Century* (Washington, DC: Center for Strategic and International Studies, 2008), 27.

should be that U.S. nuclear weapons will only be used to counter nuclear threats.¹⁴ There are important differences of opinion among policy makers and analysts over the prudence, feasibility, and practicality of going to zero.

U.S. nuclear policy, strategy, and force structure are still informed by many Cold War conceptual frameworks, even though the international security environment has changed with respect to nuclear threats and the prospect of nuclear conflict since 1991. There is significant continuity in U.S. nuclear weapons policy since 1991 as stated in the NPRs, including a commitment to parity or better against any potential nuclear adversary and a first use option under certain circumstances. A comprehensive analysis of post-Cold War NPRs indicates that policy continuities are as significant as discontinuities in explaining the actual key decisions of the NPRs. This thesis also examines areas of discontinuity such as the revised U.S. negative security assurance (NSA) in the 2010 NPR.

There is consensus among policy commentators that Cold War deterrence is at least partially obsolete, but there is disagreement over what form of deterrence is appropriate in the current security environment.¹⁵ For some analysts, the need to be able to assure, dissuade, deter, and defeat has continued, but low-confidence deterrence has replaced high-confidence, single-dynamic deterrence, reflecting a move from a structurally predictable international security environment to one of higher unpredictability. For example, Keith Payne has argued that “Many of the sophisticated deterrence concepts we developed during the Cold War specifically to prevent Soviet aggression, concepts in which we placed great confidence, can offer only an uncertain

¹⁴ See Todd J. Schollars, *Nuclear Deterrence: Strong Policy Is Needed for Effective Defense* (Carlisle Barracks, PA: U.S. Army War College, 2011).

¹⁵ The term “Cold War deterrence” is not clearly defined but is used by leading nuclear weapons policy scholars. For example, Payne wrote in the mid-1990s: “The depth to which now-traditional Cold War deterrence thought has taken root in U.S. policy would be difficult to overstate. Cold War thinking about deterrence was popularized by the 1960s and came to be regarded as a reliable set of general axioms, including the proposition that nuclear deterrence serves to make large-scale war ‘unthinkable,’ and largely implausible.” Keith B. Payne, *Deterrence in the Second Nuclear Age* (Lexington: University Press of Kentucky, 1996), 15. Payne used the term multiple times in this work. For more on Cold War deterrence, see Keith B. Payne, *The Great American Gamble: Deterrence Theory and Practice from the Cold War to the Twenty-first Century* (Fairfax, VA: National Institute Press, 2008), Chs. 1–5.

basis for deterring contemporary foes.”¹⁶ Before the 1994 NPR, some writers argued that nuclear weapons should be marginalized—even if only gradually—in national security strategy.¹⁷ In fact, by 1994 the United States had unilaterally reduced its strategic nuclear forces by discarding 450 Minuteman II missiles, eliminating a number of Minuteman missile launchers, removing 14 ballistic missile submarines from service, and reorienting the B-1B bomber force to conventional missions.¹⁸ At the same time that the Clinton Administration was trying to deemphasize nuclear weapons in declaratory policy following the 1994 NPR, there were calls from disarmament and nonproliferation advocates for complete nuclear abolition.¹⁹ Other analysts argued that nuclear weapons and the threat of nuclear weapons use remain important in an uncertain security environment. Disagreements over the requirements to maintain U.S. deterrent credibility have helped to shape the post-Cold War NPRs and descend from the 1960s, when the Kahn-Schelling debates outlined two distinct conceptions of deterrence.²⁰

The NPRs have been seen as driving nuclear weapons policies even though analysts disagree over the extent to which they have always aligned with action policy. Some analysts in the late 1990s and early 2000s concluded that there was a significant

¹⁶ Keith B. Payne, “The Nuclear Posture Review and Deterrence for a New Age,” *Comparative Strategy* 23, no. 4–5 (2004): 412.

¹⁷ See Stephen A. Cambone and Patrick J. Garrity, “The Future of U.S. Nuclear Policy,” *Survival* 36, no. 4 (1994–1995): 73–95. The authors discussed the marginalist and traditionalist policy perspectives in detail, and listed the following works as representative of the marginalist approach: McGeorge Bundy, William J. Crowe, Jr., and Sidney D. Drell, *Reducing Nuclear Danger: The Road Away from the Brink* (New York: Council on Foreign Relations Press, 1993); Graham Allison, Steven Miller, Ashton Carter, and Philip Zelikow, eds., *Cooperative Denuclearization: From Pledges to Deeds* (Cambridge, MA: Center for Science and International Affairs, Harvard University, 1993); Roger C. Molander and Peter A. Wilson, “On Dealing with the Prospect of Nuclear Chaos,” *Washington Quarterly* 17, no. 3 (1994): 19–39; and Andrew J. Goodpaster, *Tighter Limits on Nuclear Arms: Issues and Opportunities for a New Era* (Washington, DC: Atlantic Council of the United States, May 1992).

¹⁸ Leslie Aspin, *Annual Report to the President and the Congress* (Washington, DC: Government Printing Office, 1994), 61–62.

¹⁹ For example, see Lee Butler, “The False God of Nuclear Deterrence,” *Global Dialogue* 1, no. 2 (1999): 74–81; Craig Cerniello, “Retired Generals Re-Ignite Debate over Abolition of Nuclear Weapons,” *Arms Control Today* 26, no. 9 (1996): 14–15, 18. For a non-U.S. perspective, see Canberra Commission on the Elimination of Nuclear Weapons, *Report of the Canberra Commission on the Elimination of Nuclear Weapons* (Canberra, Australia: Commonwealth of Australia, 1996).

²⁰ For an analysis reviewing these debates, see Keith B. Payne, *The Great American Gamble: Deterrence Theory and Practice from the Cold War to the Twenty-first Century* (Fairfax, VA: National Institute Press, 2008).

disconnect between the 1994 NPR and action policy on nuclear issues under the Clinton Administration.²¹ Some observers have argued that the Obama Administration's 2010 NPR was essentially a public statement of policy. According to Hans Kristensen and Robert Norris, the 2010 NPR was a nuclear policy review rather than a nuclear posture review.²²

D. LITERATURE REVIEW

The decision making process for all three nuclear posture reviews was classified. The 1994 NPR resulted in no single final report, the 2001 NPR report was classified (no redacted version was ever released), and the 2010 NPR report was made public. All three NPRs were closely examined by Russia, China, and U.S. allies.²³ The Obama Administration released the 2010 NPR as an unclassified document, which was in line with a general administration preference for policy transparency. Some nuclear policy analysts had pressed for a public report before completion of the 2010 NPR.²⁴ Although the NPRs were classified, all three were discussed in multiple congressional hearings, and these transcripts are among the most important primary sources that bear on the central research question, as are official briefing materials prepared by individuals familiar with the reviews and with the classified versions of the NPR reports. Other official documents,

²¹ For example, according to a 2003 RAND report: "Although the [1994] NPR was never made public, the general thrust was easy to discern from all the visible things that did not change.... The basic U.S. force structure has remained unchanged, although it will shrink substantially now that the Russian Duma has ratified START II." Glenn Buchan, David Matonick, Calvin Shipbaugh, and Richard Mesic, *Future Roles of U.S. Nuclear Forces: Implications for U.S. Strategy* (Santa Monica, CA: RAND, 2003), 92. Kristensen was more direct in 1997: "When the review was completed in September 1994, little had changed. The Pentagon announced that it had changed the way it thought about nuclear weapons and reduced their role, although it reaffirmed nuclear deterrence and endorsed the continuation of the nuclear triad. Moreover, it granted nuclear weapons prominent roles in counterproliferation scenarios—several of which were deleted from the public version of the report." Hans Kristensen, "Targets of Opportunity: How Nuclear Planners Found New Targets for Old Weapons," *Bulletin of the Atomic Scientists* 53, no. 5 (1997): 24.

²² See Hans M. Kristensen and Robert S. Norris, "Reviewing Nuclear Guidance: Putting Obama's Words into Action," *Arms Control Today* 41, no. 9 (2011): 12–19. Also see David Lonsdale, "Obama's Second Term: Time for a New Discourse on Nuclear Strategy," *Comparative Strategy* 32, no. 5 (2013): 459–473; Benjamin Friedman, Christopher Preble, and Matt Fay, *The End of Overkill? Reassessing U.S. Nuclear Weapons Policy* (Washington, DC: Cato Institute, 2013).

²³ On international views, see Gary Samore, remarks at "International Perspectives on the Nuclear Posture Review," Carnegie Endowment for International Peace, Washington, DC, April 22, 2010.

²⁴ See, for example, William J. Perry, Brent Scowcroft, and Charles D. Ferguson, *Independent Task Force Report No. 62: U.S. Nuclear Weapons Policy* (New York: Council on Foreign Relations, 2009).

including National Security Strategy reports, Quadrennial Defense Review reports, and Secretary of Defense Annual Report documents provide the national security policy background and context for understanding the relevance of the NPRs to U.S. national security interests and strategic purposes. The most valuable secondary sources consist of scholarly studies by nuclear policy analysts and experts, especially the more serious scholars who have examined nuclear weapons policy issues consistently over time. Each NPR report generated a sizable amount of literature that attempted to clarify the issues and/or influence the shaping and implementation of policy.²⁵

Janne E. Nolan, who wrote prominent works on issues surrounding the 1994 NPR, argued that experience with reviewing and establishing nuclear policy going back to the Eisenhower administration indicated the particular challenges with determining how much deterrence capability is sufficient, what the objectives of deterrence should be, and what costs should be paid to achieve deterrence.²⁶ Her 1999 book, *An Elusive Consensus: Nuclear Weapons and American Security after the Cold War*, is considered by some commentators to be an in-depth account of the 1994 NPR.²⁷ Basing her conclusions on interviews with defense officials, Nolan focused on the failures of the 1994 NPR to adequately address the post-Cold War threat environment. Other useful secondary sources include papers by Hans Kristensen and Paul Davis.²⁸

Several other literature surveys in the wake of the 1994 NPR are noteworthy. Josiane Gabel's "The Role of U.S. Nuclear Weapons after September 11" provides an assessment of the nuclear weapons policy literature from the 1990s and post-9/11 era.²⁹

²⁵ A good example is Andrew Grotto and Joseph Cirincione, *Orienting the 2009 Nuclear Posture Review: A Roadmap* (Washington, DC: Center for American Progress, 2008). The authors argued that the Obama administration should use the 2009–2010 NPR to realign nuclear policy, forces, and posture to address the threats of nuclear terrorism and nuclear proliferation to new states.

²⁶ Janne E. Nolan, "Preparing for the 2001 Nuclear Posture Review," *Arms Control Today* 30, no. 9 (2000): 10–14.

²⁷ Janne E. Nolan, *An Elusive Consensus: Nuclear Weapons and American Security after the Cold War* (Washington, DC: Brookings Institution, 1999).

²⁸ Hans M. Kristensen, "U.S. Nuclear Strategy Reform in the 1990s," working paper, Nautilus Institute, Berkeley, CA, 2000; Paul K. Davis, *Structuring Analysis to Support Future Decisions about Nuclear Forces and Postures* (Santa Monica, CA: RAND, 2011).

²⁹ Gabel, "Nuclear Weapons after September 11," 181.

Michael R. Boldrick discussed the 1994 NPR directly in a 1995 *Parameters* article, “The Nuclear Posture Review: Liabilities and Risks,” in which he focused on the strategic forces, non-strategic forces, and infrastructure recommendations in the NPR report.³⁰ Stephen A. Cambone and Patrick J. Garrity, in their 1994 *Survival* article, “The Future of U.S. Nuclear Policy,” explained why the 1994 NPR was well-received by some observers and openly criticized by others, and discussed major schools of thought concerning the role of strategic nuclear weapons in U.S. policy.³¹ In the late 1990s, Leon Sloss, a veteran nuclear policy expert, outlined two major schools of thought in the United States about the role of nuclear weapons: the first saw maintaining nuclear weapons as dangerous to national security and conferring few strategic benefits; the second saw continuing utility in maintaining nuclear arsenals and perceived a wider role for nuclear deterrence.³²

The end of the Cold War and reduced tension between the United States and Russia in the 1990s suggested for many analysts that there was an opportunity for substantial nuclear arms reductions, but there was no corresponding consensus (noted some commentators) on what role nuclear weapons should play in national security. Kurt Guthe explained, however, that there was a kind of consensus among serious scholars and commentators, reflected in a general national political consensus between Democratic and Republican administrations, and that some “lack of consensus” arguments skewed debates to one side, the side favored more by the superficial commentators.³³ Warren Stern wrote in 1997 that there was an essential psychological factor—or a “nuclear conception,” as Stern put it—underlying nuclear policy making that went “deeper” than the Cold War conflict.³⁴ Stern’s point suggested that no major nuclear policy or nuclear

³⁰ Michael R. Boldrick, “The Nuclear Posture Review: Liabilities and Risks,” *Parameters* 25 (Winter 1995–1996): 80–91.

³¹ Stephen A. Cambone and Patrick J. Garrity, “The Future of U.S. Nuclear Policy,” *Survival* 36, no. 4 (1994–1995): 73–95.

³² See Leon Sloss, *The Current Nuclear Dialogue*, Report, no. 156 (Washington, DC: National Defense University, Institute for National Strategic Studies, 1999).

³³ See Kurt Guthe, *Ten Continuities in U.S. Nuclear Weapons Policy, Strategy, Plans, and Forces* (Fairfax, VA: National Institute for Public Policy, 2008).

³⁴ Warren Stern, *New Nuclear Conceptions: How We Have Changed the Way We Think About Nuclear Weapons and Why it Matters* (Washington, DC: National War College, 1997).

strategy changes would take place that did not involve a change in the underlying nuclear conception, and that the underlying nuclear conception might contribute to the perceived lack of ability for policy makers to substantially change nuclear policy.

Analysts and policy advocates divided roughly into marginalists and traditionalists, corresponding to the ideas of minimizing or sustaining the role of nuclear weapons in national security. The marginalizers saw a path to nuclear abolition in constructive nuclear arms control negotiations between the United States and Russia, whereas the “traditionalists” preferred to see no radical changes in the U.S. nuclear posture and did not see the strategic relevance of nuclear weapons in terms substantially different from those that prevailed during the Cold War.³⁵ Despite the marginalists’ arguments complaining about high U.S. force levels, 50 percent cuts under President George H.W. Bush, then 50 percent cuts again under President George W. Bush, together with the unilateral Presidential Nuclear Initiatives of 1991–1992, represent significant force posture changes (especially from the viewpoint of traditionalists).³⁶ Two of the most salient recommendations to come from proponents of marginalization were de-alerting and adoption of a no-first-use policy—recommendations rejected by traditionalists as damaging to U.S. national security interests. De-alerting proposals were closely tied to disarmament.³⁷ De-alerting was a long-standing issue in nuclear policy debates but not specifically a topic for all three NPRs.

What is remarkable about nuclear strategy debates in the 1990s is that they were not especially vigorous. This is not to say that some specialists did not vigorously argue for their policy agendas. The critics of official policy included William Arkin, Robert

³⁵ See CSIS Nuclear Strategy Study Group, *Toward a Nuclear Peace: The Future of Nuclear Weapons in U.S. Foreign and Defense Policy* (Washington, DC: Center for Strategic and International Studies, 1993).

³⁶ For more on the PNIs, see Susan J. Koch, *The Presidential Nuclear Initiatives of 1991–1992* (Washington, DC: National Defense University, Center for the Study of Weapons of Mass Destruction, 2012).

³⁷ See Tim Miller and Rebecca Davis, *De-Alerting Nuclear Forces* (U.S. Air Force Academy, CO: Institute for National Security Studies, 2009), 9–10.

Norris, and Hans Kristensen.³⁸ Central to nuclear strategy in the 1990s was the Single Integrated Operational Plan (SIOP), which some writers claimed was virtually unchanged from the Cold War.³⁹ The central debate about nuclear strategy in the 1990s, which went unresolved, was whether it was in U.S. national security interests to maintain an updated SIOP or to scrap a unified plan entirely and replace it with a more flexible approach that would be, it was argued, more relevant to current security threats. Despite sporadic debate, little was actually resolved on this issue until 2002–2003.

Colin Gray noted in 1990 that nuclear strategy debates were spurred by higher governmental pronouncements. “It has tended to be the political agenda of presidents,” wrote Gray, “which periodically has jumpstarted strategic debate. Presidential, or at least cabinet-level, announcements and speeches typically have been the major engine of strategic debate.”⁴⁰ This is mainly how nuclear strategy—and the NPRs—have been publically debated.

An important development during the 1990s was Presidential Decision Directive 60 (PDD-60)—the newest strategic nuclear employment guidance since 1981—signed by President Bill Clinton in November 1997.⁴¹ The implications of PDD-60 for U.S. nuclear strategy figured prominently in some public discussions, especially in 1997. According to a 2001 Natural Resources Defense Council report, PDD-60 was the most significant policy change to affect nuclear war planning in the 1990s because it removed explicit references to protracted nuclear war, but it sustained the practice of targeting Russian leadership and nuclear forces and permitted targeteers to expand the list of potential

³⁸ See Kristensen, “U.S. Nuclear Strategy Reform in the 1990s”; Matthew G. McKinzie, Thomas B. Cochran, Robert S. Norris, and William M. Arkin, *The U.S. Nuclear War Plan: A Time for Change* (Washington, DC: Natural Resources Defense Council, 2001).

³⁹ For background on the history of U.S. nuclear attack planning, see Henry D. Sokolski, ed., *Getting MAD: Nuclear Mutual Assured Destruction, Its Origins and Practice* (Carlisle, PA: U.S. Army War College, Strategic Studies Institute, 2004).

⁴⁰ Colin S. Gray, “Nuclear Strategy: What is True, What is False, What is Arguable,” *Comparative Strategy* 9, no. 1 (1990): 2.

⁴¹ Among other sources on PDD-60, see David Kunsman and Douglas B. Lawson, *A Primer on U.S. Strategic Nuclear Policy* (Albuquerque, NM: Sandia National Laboratory, 2001); and Tom Sauer, *Nuclear Inertia: U.S. Nuclear Weapons Policy after the Cold War* (London: I.B. Tauris, 2005). For a contemporary view, see R. Jeffrey Smith, “Clinton Directive Changes Strategy on Nuclear Arms: Centering on Deterrence, Officials Drop Terms for Long Atomic War,” *Washington Post*, December 7, 1997, A1.

targets in China.⁴² According to Craig Cerniello, PDD-60 reaffirmed the policy of deterrence and the primary role of nuclear weapons for deterrence.⁴³ PDD-60 ratified, so to speak, the primary recommendations of the 1994 NPR.

Keith B. Payne, who served as Deputy Assistant Secretary of Defense for Forces Policy in 2002–2003, wrote extensively between 2001 and 2009 to correct what he regarded as a host of errors in interpretations of the 2001 NPR. Payne was acknowledged as the primary influence (the “principal architect”) behind the 2001 NPR.⁴⁴ He held that mistaken impressions about the 2001 NPR were the result of commentators using obsolete Cold War era concepts about nuclear strategy and deterrence requirements.⁴⁵ Payne contended that the post–September 11 (indeed post–Cold War) world included a much longer list of potential adversaries that the U.S. needed to deter, as compared to the Cold War period, that there was much more variety in the contexts in which deterrence needed to be achieved, and that the stakes involved were generally more variable and less predictable, necessitating a fundamental reassessment of the deterrence concepts developed during the Cold War.⁴⁶ Payne and his colleagues were dedicated scholars who tried to clearly articulate and focus on the issues surrounding deterrence rationales and requirements in the post–Cold War security environment.

Richard Sokolsky and other authors attempted to explain the core concepts of the 2001 NPR. Sokolsky concluded that, while many of the criticisms of the 2001 NPR had been exaggerated and that many critics had failed to appreciate that it might have enhanced deterrence, the review also failed to deliver promised changes in nuclear strategy and posture, and did not prompt needed changes to the U.S.–Russian nuclear

⁴² McKinzie et al., *The U.S. Nuclear War Plan: A Time for Change*, 10.

⁴³ Craig Cerniello, “Clinton Issues New Guidelines on U.S. Nuclear Weapons Doctrine,” *Arms Control Today* 27, no. 8 (1997): 23.

⁴⁴ H.A.S.C. No. 110–73: *U.S. Nuclear Weapons Policy*, Hearing before the Strategic Forces Subcommittee of the Committee on Armed Services, House of Representatives, 110th Cong., 1st sess., 2008, 1.

⁴⁵ Keith B. Payne, “The Nuclear Posture Review: Setting the Record Straight,” *Washington Quarterly* 28, no. 3 (2005): 135–151.

⁴⁶ See Payne, “Deterrence for a New Age,” 411–414. For a more extensive analysis, see Keith B. Payne, *The Fallacies of Cold War Deterrence and a New Direction* (Lexington: University Press of Kentucky, 2001).

relationship.⁴⁷ Russia's central role in shaping the U.S. nuclear force posture persisted through the 2010 NPR.

Keir Lieber and Daryl Press are widely cited commentators on nuclear weapons policy, including the issue of U.S. nuclear primacy and U.S. nuclear deterrence. Lieber and Press claimed that the nuclear balance had shifted significantly since the Cold War, driven primarily by declining Russian arsenals and improvements in the accuracy of U.S. nuclear weapon systems, that the United States was nearing nuclear primacy, and that the U.S. edge would grow if Russia and China did not commit the resources necessary to reestablish a counterbalancing deterrent.⁴⁸ In their counterargument on U.S. nuclear primacy, Bruce Blair and Chen Yali questioned why Lieber and Press assumed that improved U.S. nuclear forces would create less international security, and asked how they had calculated that the United States had such a first-strike superiority as to threaten long-standing strategic stability. Blair and Yali concluded: "In an ironic twist of fate, the weakness of America's adversaries only undermines U.S. and global security."⁴⁹

The overarching debate to emerge from the 2001 NPR concerning future force structure was whether the Cold War triad was sufficient or whether a new form of the nuclear triad was necessary to support U.S. national strategic objectives. Some analysts argued that the triad needed to be reformulated to more closely reflect twenty-first century threats and defense policy goals. The implications of the George W. Bush Administration's new triad—comprised of strike means, nuclear and conventional; defensive capabilities, active and passive; and a responsive defense-industrial infrastructure—were examined and debated in military service publications and were the topic of a number of advanced military service school papers and theses.⁵⁰ Since some

⁴⁷ Richard Sokolsky, "Demystifying the U.S. Nuclear Posture Review," *Survival* 44, no. 3 (2002): 133–148.

⁴⁸ Keir A. Lieber and Daryl G. Press, "The End of MAD? The Nuclear Dimension of U.S. Primacy," *International Security* 30, no. 4 (2006): 7–44.

⁴⁹ Bruce Blair and Chen Yali, "The Fallacy of Nuclear Primacy," *China Security* (Autumn 2006): 51.

⁵⁰ Examples include Heidi A. Paulson, *Toward a New "New Triad"* (Maxwell Air Force Base, AL: Air Command and Staff College, 2009); David Fiely, *National Strategy and Implementation of the New Triad—Congruent or Divergent?* (Carlisle Barracks, PA: U.S. Army War College, 2002); and Christopher G. Owens, *The Promise and Peril of the New Strategic Triad* (Carlisle Barracks, PA: U.S. Army War College, 2003).

commentators interpreted the Bush administration's New Triad as an attempt to restart the development of new nuclear weapons designs, while others argued that it would undermine nonproliferation efforts, the topic also captured the attention of policy analysts such as David McDonough, Kurt Guthe, and Sidney Drell.⁵¹

With the publication of the 2010 NPR many of the same core issues of the role of nuclear weapons in a post-Cold War security environment were reopened by commentators and analysts. The pattern of debates over deterrence requirements has repeated; the core issues have remained remarkably consistent—the purposes, rationales, and usefulness of nuclear weapons. The related policy questions have not been fully resolved because of the deep-seeded convictions behind competing answers. What made this round of public debates unique was President Obama's prominent public declaration in April 2009 in Prague committing the United States to the objective of working toward the complete abolition of nuclear weapons. Joanna Spear, in her article, "More Business as Usual? The Obama Administration and the Nuclear Posture Review," applied a bureaucratic politics model to identify three distinct policy camps (made up of individuals in and out of government) that quickly organized to shape the preparation of the 2010 NPR: the "facilitators" worked to establish at least some permanent architecture to promote President Obama's policy (to set the nation on a denuclearization path); the "neutrals" backed ongoing arms control negotiations and associated efforts and did not see the President's nuclear disarmament policy as threatening; and the "blockers" were committed to heading off any substantial scaling back of the U.S. nuclear weapons enterprise.⁵²

It could also be said that President Obama's fundamental reordering of policy goals with respect to nuclear nonproliferation and disarmament was the most influential step reflected in the 2010 NPR report. The 2010 NPR touched off debate about the

⁵¹ David S. McDonough, "The 2002 Nuclear Posture Review: The 'New Triad,' Counterproliferation, and U.S. Grand Strategy," Working Paper 38, Institute of International Relations, University of British Columbia, 2003; Kurt Guthe, *The Nuclear Posture Review: How Is the "New Triad" New?* (Washington, DC: Center for Strategic and Budgetary Assessments, 2002); and Sidney D. Drell and James E. Goodby, *What Are Nuclear Weapons For? Recommendations for Restructuring U.S. Strategic Nuclear Forces* (Washington, DC: Arms Control Association, 2005).

⁵² Spear, "More Business as Usual," 241.

particular challenges and threats of reducing to very low nuclear arms levels (aspects of this debate reach back to the 1990s).⁵³ Competing arguments over abolition—and what some authors have called “delegitimization”—have been revived, but they are not significantly different from those advanced in earlier generations of disarmament thinking.⁵⁴

E. METHODS AND SOURCES

This thesis presents a study of the three post–Cold War NPRs on the basis of primary and secondary sources. This thesis analytically surveys the policy debates that followed each NPR. The purpose is to analyze decisions and debates about the NPRs in a comparative study that includes examining the NPRs (and related documents, reports, and testimony) as policy, and assessing the surrounding debates as part of the policy making process. Considering the continuities and discontinuities in the U.S. nuclear posture, this thesis analyzes and compares the post–Cold War NPRs to understand how each administration attempted to shape and direct policy, and how key issues were framed and addressed by policy makers and policy commentators.

A comparative approach to the study of the post–Cold War NPRs provides a solid foundation for understanding nuclear weapons policy, strategy, and force structure. This research suggests that the three NPRs proposed a similar force structure. What becomes clearer through a comparative analysis is that the declaratory policy surrounding the force structure was advanced differently and these differences affected the related policy debates (at times significantly, as in the case of the George W. Bush administration and so-called bunker-busters, and the Obama administration and nuclear disarmament). The policy debates have had some impact on nuclear weapons policy making (as well as on subsequent NPRs) but the impact has been limited at times. The NPRs are both

⁵³ On the issues of very low nuclear weapons levels, see National Academy of Sciences Staff, *The Future of U.S. Nuclear Weapons Policy* (Washington, DC: National Academy Press, 1997), 77–83.

⁵⁴ Issues relating to “global zero” are discussed in Catherine Kelleher and Judith Reppy, eds., *Getting to Zero: The Path to Nuclear Disarmament* (Stanford, CA: Stanford University Press, 2011). Abolition and nonproliferation are not directly relevant to the primary research question in this thesis, but these issues are pertinent to questions of policy and force structure (especially force levels). See Clark A. Murdock, John C. Browne, Francis Slakey, Benn Tannenbaum, and Jessica Yeats, *Nuclear Weapons in 21st Century U.S. National Security* (Washington, DC: Center for Strategic and International Studies, 2008).

statements of policy and agendas for action, and they provide a window into official thinking on nuclear weapons policy, strategy, and force structure. The NPRs influence U.S. policies concerning (among other activities) arms control, nuclear weapons complex and infrastructure modernization, nonproliferation, and counter-proliferation. This thesis examines the debates in academic journals, policy papers, and conference reports because this work attempted to influence the preparation of the NPRs and to shape their implementation. Debating the implications of the NPRs was a central dynamic in their production and use as official policy guidance.

F. THESIS OVERVIEW

Because this is a comparative analysis of national security policy documents, each main section of the thesis examines one NPR, and each main body section follows the same format. The first section of each chapter examines primary sources related to the NPR, including the DOD Annual Reports and statements by high-level DOD officials, including the Secretary of Defense, the Deputy Secretary of Defense, and the Under Secretary of Defense for Policy, to clearly identify the most important policy decisions and recommendations. The second section of each chapter examines the views of key commentators with different policy agendas and interests. Chapters II, III, and IV focus on the NPRs in 1994, 2001, and 2010 respectively. Chapter V synthesizes the ideas and conclusions from the previous chapters in an effort to provide a more comprehensive understanding of the post-Cold War development of U.S. nuclear policy, strategy, and force structure. The concluding chapter identifies continuities and discontinuities in the NPRs, and considers how the role of nuclear weapons, deterrence theory, and force structure has been addressed since the end of the Cold War.

This thesis does not deal directly with proliferation, nonproliferation, or arms control as distinct policy topics. The focus is on declaratory policy as developed through the NPRs. The NPRs are essentially expressions of declaratory policy, though they make reference to (and are intended to affect) all dimensions of nuclear policy. The focus is on the immediate results (recommendations or key decisions) of the NPRs. In other words, the thesis concentrates on the reviews, as indicated by reports, testimony, and other

sources, and the primary public discussions about the NPRs, not on the reviews as decision-making processes. The NPRs are important manifestations of official nuclear policy and strategy but not the only component. Administrations have wider and more technical nuclear policies, but the focus here, primarily for clarity, is on the declaratory dimension of the NPRs.

II. THE 1994 NUCLEAR POSTURE REVIEW

Secretary of Defense Dick Cheney reported U.S. strategic nuclear forces for the end of fiscal year 1993 in his 1993 Annual Report, before the completion of the 1994 NPR, as 227 Minuteman II ICBMs, 500 Minuteman III ICBMs, 50 Peacekeeper ICBMs, 96 C-4 SLBMs on 8 Poseidon SSBNs, 192 C-4 SLBMs on 8 Trident I SSBNs, 144 D-5 SLBMs on 6 Trident II SSBNs, 95 B-52Hs, and 96 B-1Bs.⁵⁵ These were the essential elements of the U.S. strategic nuclear force structure at the end of the Cold War in 1989–1991. As Keith Payne has observed, U.S. Cold War deterrence requirements were based on a “balance of terror” vis-à-vis the Soviet Union and assumed rational leaders; confidence in the stability of the nuclear balance of terror was so high that it was sometimes referred to as existential deterrence.⁵⁶ The Cold War force structure matured to support the deterrence strategy often called mutual assured destruction (or MAD).⁵⁷ The START I Treaty was meant to reduce the force levels called for under MAD, and the 1994 Nuclear Posture Review was meant to arrive at post-START force posture.⁵⁸ The 1994 NPR was meant to move the United States away from MAD and its supporting force structure and posture.

⁵⁵ Dick Cheney, *Annual Report to the President and the Congress* (Washington, DC: Office of the Secretary of Defense, 1993), 68.

⁵⁶ Keith B. Payne, “Moving Beyond the Cold War’s Nuclear ‘Balance of Terror,’” *Comparative Strategy* 23, no. 2 (2004): 121–122.

⁵⁷ “From the early 1960s through the end of the Cold War, the strategic nuclear balance among the great powers was characterized by mutual assured destruction. Any attack by one side against another would leave the victim with more than enough deliverable nuclear warheads to exact terrible retribution against the aggressor’s homeland.” Lieber and Press, “The End of MAD?” 11.

⁵⁸ The United States and the Soviet Union signed the Strategic Arms Reduction Treaty (START) in 1991, but due to the subsequent breakup of the Soviet Union, START did not enter into effect until three years later. By December 2001, the United States and Russia had cut their numbers of deployed strategic delivery vehicles to less than 1,600 and their attributed warheads to less than 6,000. See “Fact Sheet: The Legacy of START and Related U.S. Policies,” Bureau of Verification, Compliance, and Implementation, July 16, 2009.

A. KEY DECISIONS

Secretary of Defense Les Aspin identified “dramatic nuclear reductions” as an “opportunity” in the 1993 Bottom–Up Review.⁵⁹ In the early 1990s, it seemed that some policy makers saw geopolitical circumstances as presenting an opportunity to reduce nuclear arsenals. Secretary Aspin explained in his 1994 Annual Report how the international strategic environment facing the United States had changed from the Cold War, but still included tens of thousands of nuclear weapons deployed in parts of the former Soviet Union, and how U.S. strategic nuclear forces and strategic deterrence would continue as critical components of national security strategy.⁶⁰ The key 1994 NPR decisions were captured by the “lead and hedge” strategy and policy (a force level–dominated concept), encompassing force reductions with flexibility to respond to unexpected developments by re-achieving previous force levels. The 1994 NPR influenced nuclear strategy and deterrence requirements, but its key decisions were more shaped by political and fiscal pressures driving force levels down than by the administration’s policy preferences. The authors of the 1994 NPR set out to construct a nuclear force posture for the post–Cold War era; the 1994 NPR was a review to establish nuclear force structure requirements consistent with future START II force levels.

1. Role of Nuclear Weapons

The role of nuclear weapons in U.S. policy and strategy has been influenced by the perception of the weapons as tools of last resort, reserved for the most grave situations and worst threats, given their immense destructiveness. President George H.W. Bush told Vice President Dan Quayle and others in a 1989 Presidential Directive that nuclear weapons were “ultimate guarantors” of national security.⁶¹ In considering the purposes of nuclear weapons, the 1994 NPR identified three threat–related problems that

⁵⁹ Leslie Aspin, *Report on the Bottom–Up Review* (Washington, DC: Department of Defense, 1993), 2.

⁶⁰ Aspin, *1994 Annual Report*, 147.

⁶¹ “Review of National Defense Strategy,” Confidential, National Security Review, NSR 12, March 3, 1989, *Presidential Directives*, Part II, Item Number: PR01789. Executive Office of the President, From: Bush, George To: Quayle, J. Danforth et al., 1, http://gateway.proquest.com/openurl?url_ver=Z39.88-2004&res_dat=xri:dnas&rft_dat=xri:dnas:article:CPR01789.

might influence changes to the U.S. nuclear force posture: a reversal of political reform in Russia and the emergence of a government in Moscow antagonistic to the United States; a slower force drawdown in Russia than in the United States; and arrangements for the security of nuclear weapons and materials in the former Soviet Union.⁶² The 1991 National Security Strategy stated that, unlike the unitary actor that predominated in nuclear strategic thinking during the Cold War, the United States would need to consider state leaders other than those of the Soviet Union prepared to use WMD.⁶³ In the aftermath of the Cold War, however, there were still attempts to seize opportunities for major changes to national security policy. In his 1993 Annual Report, Secretary Cheney indicated that there were important opportunities to reduce the levels of certain kinds of weapons, referred to as “the most destabilizing,” including MIRVed ICBMs and SLBMs, to increase strategic stability.⁶⁴ The roles of U.S. nuclear weapons have been related to their perceived fundamental purposes.

The 1994 Nuclear Posture Review considered various purposes of nuclear weapons and the relation of these purposes to central deterrence, extended deterrence, regional challengers, and WMD threats. A group of RAND authors in 2003 explained the primary roles of strategic nuclear forces as deterring large-scale “strategic” attacks and delivering massive amounts of destruction against an adversary, but noted that there could be other uses, including tactical employment, and that the U.S. nuclear arsenal included nuclear weapons for that purpose.⁶⁵ Experts have pointed out that nuclear weapons do not have an intrinsic “sole purpose” quality: to only deter nuclear attack. Regarding extended deterrence, Secretary of Defense William Perry asserted in his 1995 Annual Report that “the United States has not only a national deterrent posture, but an

⁶² U.S. Department of Defense, *The Nuclear Posture Review* (Washington, DC: Office of the Assistant Secretary of Defense for Public Affairs, 1994), 45. Since there was no published report of the 1994 NPR, this document is comprised of the Department of Defense briefing slides titled “Nuclear Posture Review,” Secretary Perry’s Stimson Center remarks (September 20, 1994), the news release, “DOD Review Recommends Reductions in Nuclear Force,” September 22, 1994, and the press conference with Perry, Chairman of the JCS Shalikashvili, and Deputy Secretary of Defense Deutch (September 22, 1994).

⁶³ George H.W. Bush, *National Security Strategy of the United States* (Washington, DC: The White House, 1991), 26.

⁶⁴ Cheney, *1993 Annual Report*, 4.

⁶⁵ Buchan et al., *Future Roles of U.S. Nuclear Forces*, 47.

international nuclear posture,” grounded on non-strategic nuclear forces (NSNF), which were not addressed by START I or START II, and which focused on regions considered vital to U.S. national interests.⁶⁶ According to the 1992 National Military Strategy, the purpose of nuclear weapons was to deter WMD and major conventional threats.⁶⁷ The 1992 NMS had already spelled out a need for more flexible, regionally-focused security approaches. The 1993 Report on the Bottom-Up Review observed that a regional power armed with WMD could threaten a neighbor to not request U.S. security assistance, threaten U.S. force concentrations, threaten ports necessary for U.S. force movements, and threaten U.S. population centers with “covertly delivered weapons or, eventually, ballistic or cruise missiles.”⁶⁸ Congressional hearings on threats to national security in 1997 identified WMD proliferation and nuclear-armed rogue states as primary concerns.⁶⁹ Nuclear weapons were not viewed officially by policy makers as sole-purpose tools.

Nuclear weapons serve multiple functions in national security and have been seen as reinforcing alliances. Analysts have discussed the foreign policy functions of nuclear weapons beyond the simple, counter-nuclear weapons threat role. Colin Gray and Keith Payne argued in 1980 that nuclear weapons back up foreign policy and strengthen critical alliances, and that nuclear weapons have utility in making coercive threats, even when couched within “politically defensive” aims.⁷⁰

Nuclear weapons may enhance security guarantees by making U.S. military capabilities appear more robust. In his 1992 Annual Report, Secretary of Defense Cheney suggested that nuclear weapons “support” the global power role of the United States and

⁶⁶ William J. Perry, *Annual Report to the President and the Congress* (Washington, DC: Government Printing Office, 1995), 88–89.

⁶⁷ Joint Chiefs of Staff, *National Military Strategy of the United States* (Washington, DC: Government Printing Office, 1992), 13.

⁶⁸ Aspin, *Bottom-Up Review*, 5.

⁶⁹ *H.N.S.C. No. 105–11: Threats to U.S. National Security*, Hearing Before the Committee on National Security, House of Representatives, 105th Cong., 1st sess., 1997, 1.

⁷⁰ Gray and Payne, “Victory Is Possible,” 20.

its key alliances, including NATO.⁷¹ John M. Deutch, then the Deputy Secretary of Defense, testified in 1994 that nuclear weapons allow the United States to reliably deter other states with nuclear weapons from threatening the United States or its allies.⁷² In his 1995 Annual Report, William Perry linked roles and missions to force level requirements to counter threats, arguing that “The United States must maintain nuclear forces of sufficient size and capability to hold at risk a broad range of assets valued by potentially hostile nations.”⁷³ At the time of the 1994 NPR, conceptions of the roles and purposes of nuclear weapons were developed in light of the Cold War experience and assessments of probable post–Cold War requirements.

2. Theory of Deterrence

Key decisions of the 1994 NPR were made in light of arms control and nonproliferation objectives. Secretary Perry wrote in his 1995 Annual Report that the 1994 NPR called for unilateral posture changes aligned with arms control agreements made possible by the new “pragmatic partnership” between the United States and Russia.⁷⁴ The 1998 National Security Strategy made repeated references to nonproliferation. The 1998 NSS highlighted the value of nuclear weapons in deterring “aggression and coercion” through a “robust” triad and fully maintained infrastructure, and—capping changes outlined in PDD-60—described nuclear planning as focused on deterring nuclear war, not winning nuclear war.⁷⁵ There was substantial continuity of concepts across national strategic documents—including DOD annual reports and NSSs—on core nuclear posture issues and topics, including the nuclear triad, the nuclear complex, forward deployment, and extended deterrence, from the 1994 NPR through the late 1990s. In his 1997 Annual Report, Secretary of Defense William Cohen declared that START I was the first treaty to actually reduce the superpowers’ deployed strategic

⁷¹ Dick Cheney, *Annual Report to the President and the Congress* (Washington, DC: Office of the Secretary of Defense, 1992), 7.

⁷² *H. Hrg.: U.S. Nuclear Policy*, Committee on Foreign Affairs, 103rd Cong., 2nd sess., 1995, 8.

⁷³ Perry, *1995 Annual Report*, 163.

⁷⁴ *Ibid.*, 91.

⁷⁵ William J. Clinton, *A National Security Strategy for a New Century* (Washington, DC: The White House, 1998), 12.

offensive weapon systems, and that START I mandated the reduction of accountable strategic warheads by more than 40 percent and reduced strategic delivery vehicles (SDVs) by about one-third over three phases, with final levels to be accomplished by December 2001.⁷⁶ The 1994 NPR was intimately tied to arms control from the start as it was expected to recommend force structure for START II.

The 1994 NPR considered strategic deterrence at lower nuclear force levels. According to a USSTRATCOM memorandum, the 1994 NPR reaffirmed the continued importance of deterrence.⁷⁷ In discussing the 1994 NPR, Secretary Perry emphasized the substitution of Mutual Assured Safety (or MAS) for MAD—an apparently different way of conceiving of strategic deterrence—and the strategy of “leading and hedging.”⁷⁸ Perry called for a new approach to thinking about nuclear weapons, and he evidently believed that the 1994 NPR had defined one. Despite a changed strategic environment and the need for force reductions, according to testimony by Under Secretary of Defense for Policy Walter Slocombe in 1997, the 1994 NPR concluded that the United States should continue relying on a strategic deterrent role for nuclear weapons because encouraging international security developments might reverse course dramatically and unexpectedly.⁷⁹ The Assistant Secretary of Defense for Strategy and Threat Reduction, Edward Warner, explained in 1998 that the 1994 NPR had led to substantial changes in

⁷⁶ William S. Cohen, *Annual Report to the President and the Congress* (Washington, DC: Government Printing Office, 1997), 56. The strategic delivery vehicles covered in START I included ICBMs, SLBMs, and strategic bombers.

⁷⁷ “Overview of Nuclear Posture Review (NPR) Results,” United States Strategic Command, ca. September 22, 1994, 1.

⁷⁸ *The 1994 Nuclear Posture Review*, 48.

⁷⁹ *S. Hrg. 105–159: The Future of Nuclear Deterrence*, Subcommittee on International Security, Proliferation, and Federal Services of the Committee on Governmental Affairs, 105th Cong., 1st sess., 1997, 10.

force posture and had eliminated nuclear weapons on Navy surface ships.⁸⁰ Warner suggested that the 1994 NPR and the earlier PNIs together resulted in a stockpile decrease of “more than” 50 percent, and even more significantly, U.S. unilateral NSNF reductions to “one-tenth of Cold War levels.”⁸¹ The 1994 NPR apparently conceived of strategic deterrence in substantially the same terms as during the Cold War. MAD was described as obsolete (at least in part, because there was no unitary Soviet adversary), but not effectively replaced. Perry spoke of MAS, but it apparently did not take hold officially in Washington or Moscow. Despite real posture changes, the 1994 NPR did not measurably alter conceptions of the fundamental deterrence purpose of U.S. nuclear forces.

Issues relating to extended deterrence and nuclear proliferation influenced key decisions of the 1994 NPR. Important recommendations were made regarding NSNF (including remarkable reductions) and allied commitments, including maintaining NATO commitments. The 1994 NPR recommended continuing the commitment to NATO of dual-capable aircraft based in Europe and the deployment of nuclear weapons in Europe, keeping continental U.S.-based dual-capable aircraft, ending the option to deploy nuclear weapons on carrier-based dual-capable aircraft, removing the option to carry nuclear-armed cruise missiles on surface ships, and retaining the capability to deploy nuclear-armed cruise missiles on submarines.⁸² “The effect of the NSNF recommendations,” the NPR stressed, “is to eliminate the capability to deploy nuclear weapons on surface naval

⁸⁰ “Since the end of the Cold War, our nuclear deterrent posture has dramatically changed. Under the 1991 Presidential Nuclear Initiative, we decided to: eliminate our entire inventory of ground-launched nonstrategic nuclear weapons (nuclear artillery and Lance surface-to-surface missiles); remove all nonstrategic nuclear weapons on a day-to-day basis from surface ships, attack submarines and land-based naval aircraft bases; remove our strategic bombers from alert; stand down the Minuteman II ICBMs [intercontinental ballistic missiles] scheduled for deactivation under START I; terminate the mobile Peacekeeper and mobile small ICBM programs; and terminate the SRAM-II nuclear short-range attack missile. In January 1992, the second Presidential Nuclear Initiative took further steps which included: limiting B-2 production to 20 bombers, canceling the entire small ICBM program, ceasing production of W-88 Trident SLBM [submarine-launched ballistic missiles] warheads, halting purchases of advanced cruise missiles, and stopping new production of Peacekeeper missiles.” The 1994 NPR “eliminated even the capability to deploy nuclear weapons (bombs and cruise missiles) on Navy surface ships.” U.S. Department of Defense, Office of the Assistant Secretary of Defense (Public Affairs), Speech, *Nuclear Deterrence Force Still Essential*, Prepared statement by Edward L. Warner III, Assistant Secretary of Defense for Strategy and Threat Reduction, Senate Armed Services Committee, March 31, 1998.

⁸¹ Ibid.

⁸² *The 1994 Nuclear Posture Review*, 39.

ships, while maintaining a non-strategic force capability to fulfill our commitments to allies.”⁸³

In his 1995 Annual Report, Secretary of Defense Perry repeated some of the ideas (and used similar language) regarding alliance commitments and NSNF, suggesting that the NPR recommendations had been adopted. The 1994 NPR took key alliance commitments and the “unique characteristics” of NSNF into account and considered multiple force postures (including an option that completely eliminated NSNF), but retained an NSNF capability to fulfil alliance security guarantees.⁸⁴ In 1995, Chairman of the Joint Chiefs of Staff John Shalikashvili, in the National Military Strategy, linked extended deterrence and nonproliferation through the idea of maintaining forward deployed and deployable NSNF, arguing that extended deterrence was decisive to U.S. nonproliferation efforts.⁸⁵ Shalikashvili also laid out explicitly the notion of WMD proliferation as a strategic threat.⁸⁶

Countering nuclear proliferation was part of the 1994 NPR. The 1994 Annual Report described the evolving “nature of strategic deterrence,” referring to actions by the United States, Russia, Belarus, Kazakhstan, and Ukraine to observe the requirements of START, and specified the policy goals of reducing the threat from remaining Soviet nuclear weapons and countering nuclear proliferation.⁸⁷ The 1994 NPR appeared to explicitly put alliance commitments at the center of considerations and important recommendations were made with a view to maintaining extended deterrence.

3. Force Structure

Key force structure decisions of the 1994 Nuclear Posture Review incorporated START I force levels, the concept of “lead and hedge,” and 2003 (post–START II) expected force levels. The publically available 1994 NPR briefing slides concluded with

⁸³ Ibid.

⁸⁴ Perry, *1995 Annual Report*, 89.

⁸⁵ John M. Shalikashvili, *National Military Strategy: A Strategy of Flexible and Selective Engagement* (Washington, DC: Department of Defense, 1995), 10.

⁸⁶ Ibid., i.

⁸⁷ Aspin, *1994 Annual Report*, 62, 270.

the themes of a reduced role for nuclear weapons in national security, counter proliferation, reversibility (if Russian political reform failed), and nuclear stockpile stewardship.⁸⁸ The primary NPR results with respect to strategic force levels included decisions to: maintain no more than 20 B–2 bombers in the nuclear role, reduce the B–52 bomber force from 94 to 66, reduce Trident submarine fleet numbers from 18 to 14, modernize the SLBM force for an extended service life by arming all submarines with D–5 missiles, maintain 500/450 single warhead Minuteman III ICBMs, and maintain flexibility for subsequent force level cuts or force reconstitution.⁸⁹

The 1994 NPR force level recommendations—which supported the Clinton administration policy of “lead and hedge”—centered on a requirement of 3,500 weapons, given full implementation of the START II treaty.⁹⁰ In 1995, Perry addressed force levels and threats, including Russia. He explained that the 1994 NPR analyzed various force structures, from ones that increased systems to a minimal force without ICBMs and ten SSBNs, and that the recommended 1994 NPR force structure (which included “hedge” forces) accepted by President Clinton was based on Russian ratification and successful implementation of START II.⁹¹

The U.S. policy approach to force levels under START I and START II appeared to change in 1996. Recognizing that the Russian parliament had still not ratified START II and accepting that the strategic role of nuclear weapons had declined, in his 1996 Annual Report Perry explained that the United States would “hedge”—at an “affordable cost”—by keeping options to maintain forces under START I levels until Russian ratification of START II and the initiation of treaty–mandated reductions.⁹²

In 1994, Perry explained the motivations behind “leading and hedging.” The United States was in a position to lead arms reductions to reduce defense spending and

⁸⁸ *The 1994 Nuclear Posture Review*, 35.

⁸⁹ *Ibid.*, 36.

⁹⁰ See *S. Hrg. 103–870: Briefing on Results of the Nuclear Posture Review*, Senate Armed Services Committee, 103rd Cong., 2nd sess., 1994. Also see Perry, *1995 Annual Report*, 83–92.

⁹¹ Perry, *1995 Annual Report*, 87.

⁹² William J. Perry, *Annual Report to the President and the Congress* (Washington, DC: Office of the Secretary of Defense, 1996), 15.

promote disarmament, as required by Article VI of the Treaty on the Nonproliferation of Nuclear Weapons, but Washington would also hedge against political reversals in Russia—defined as a return of an authoritative government with 25,000 nuclear weapons—and the policy goal of pursuing both objectives was reflected in the 1994 NPR.⁹³ Perry concluded in 1995 that the 1994 NPR had successfully negotiated a balance between lead and hedge, rebalanced the nuclear triad, adjusted NSNF levels, and recommended force reductions in line with the goal of a reduced role for nuclear weapons.⁹⁴ For Perry, the 1994 NPR had achieved the smaller, safer, and more controlled nuclear arsenal envisaged. The 1994 NPR examined multiple force structures and arrived at one that could serve as the START II force while also serving the goals of “lead and hedge.”

The key force structure decisions of the 1994 Nuclear Posture Review revolved around force level reductions. Pointing to a reduced role for nuclear weapons, Perry described the 1994 NPR recommended force levels as a stabilizing force structure following the dramatic changes in forces and programs since the end of the Cold War.⁹⁵ The 1994 NPR identified different future force structure paths, considered “significant” reductions, declared that the “primary concern” remained the capabilities of the former Soviet Union (including the possibilities of a hostile Russian government or an arms control process failure), and reviewed options for faster reductions.⁹⁶ The official view in 1995 regarding the 1994 NPR recommendations was that force numbers (which were still expected to be adjusted) reflected reduced platforms, not warheads—specifically, the NPR “did not change the total number of warheads the United States planned to retain under START II”—and “no new strategic nuclear systems are either under development or planned.”⁹⁷ Perry argued in his 1995 Annual Report that force reductions under START I and START II demonstrated a reduced role of nuclear weapons in U.S. national

⁹³ *The 1994 Nuclear Posture Review*, 50.

⁹⁴ Perry, *1995 Annual Report*, 92.

⁹⁵ *The 1994 Nuclear Posture Review*, 40.

⁹⁶ *Ibid.*, 10.

⁹⁷ Perry, *1995 Annual Report*, 87.

security, and he outlined major posture changes already completed by 1995, including a 47 percent reduction in the number of deployed strategic warheads, a 90 percent reduction in NSNF, and a 91 percent cut in NATO stockpiles.⁹⁸ Force level reductions were linked to the reduced role of nuclear weapons in official statements.

The 1994 NPR reviewed the nuclear triad and how it might be rebalanced to better reflect the contemporary security environment. Two years before the NPR, in his 1992 annual report, Secretary of Defense Cheney argued for a smaller arsenal (arms reductions) but the same basic force structure (retention of the Cold War nuclear triad), noting that national security requirements still called for a survivable, effective strategic deterrent.⁹⁹ The 1998 NSS continued to endorse a nuclear triad “sufficient to deter” any potential adversary leaders with access to nuclear weapons and to dissuade such leaders from competing with the United States by convincing them that pursuing a nuclear advantage “would be futile.”¹⁰⁰ The 1994 NPR did not seriously challenge the nuclear triad inherited from the Cold War or the deterrence role of the triad.

The 1994 NPR reportedly considered eliminating one leg of the triad. According to the *Washington Post*, Ashton Carter, then the Assistant Secretary of Defense for International Security Policy, wrote an option to cut the land-based leg of the nuclear triad. This option failed to gain support from the Secretary of Defense or key Members of Congress.¹⁰¹

The nuclear triad had been “rebalanced,” according to Deutch’s congressional testimony on the 1994 NPR.¹⁰² In 1995, Perry discussed hedging against the failure of one leg of the triad “because of technical failure of a delivery platform or warhead, or technological breakthroughs by potential adversaries” as a rationale for retaining the nuclear triad, and he observed that the triad was still relevant to a START II-size

⁹⁸ Ibid., 86.

⁹⁹ Cheney, *1992 Annual Report*, vii, 7, 62.

¹⁰⁰ Clinton, *A National Security Strategy for a New Century*, 12.

¹⁰¹ David B. Ottaway and Steve Coll, “Trying to Unplug the War Machine,” *Washington Post*, April 12, 1995, A1.

¹⁰² *H. Hrg.: U.S. Nuclear Policy*, 3.

force.¹⁰³ Perry emphasized that the United States relied on fewer types of nuclear weapon systems following the 1994 NPR, which may explain what he meant by “rebalanced.” The 1994 NPR clearly decided that a nuclear triad of SDVs still applied to planned force levels.

B. PUBLIC DEBATES

According to Josiane Gabel, U.S. nuclear posture debates in the 1990s concerned the implications of post–Cold War “exigencies,” including, most importantly, the idea that “it was in the United States’ interest to reduce the political salience of nuclear weapons in international affairs” and “that lower levels of nuclear armament would make the United States and its allies more secure.”¹⁰⁴ Michael Krepon asserted that, with the Cold War over, “nuclear overkill” and vulnerability to missile attack no longer seemed like valid concepts, no longer seemed credible in policy debates, and no longer seemed to resonate with public perceptions or congressional interests.¹⁰⁵ Scholars and policy advocates responded to post–Cold War realities and considered the overall role—or salience—of nuclear weapons in U.S. national security and international relations. The 1994 NPR was criticized primarily for being too wedded to the status quo. Disarmament-oriented critics argued that the changes it prescribed did not go far enough to alter the nuclear posture, in view of the threats of the 1990s.

1. Nuclear Triad, Modernization, and Force Level Changes

Debaters about the 1994 Nuclear Posture Review and force structure, the nuclear triad, and a possible dyad, tended to fall into “retain” and “modify” camps. By one account the 1994 NPR did not satisfy “progressive” policy advocates who were looking for more significant changes to the triad since both retention of the nuclear triad and the

¹⁰³ Perry, *1995 Annual Report*, 88.

¹⁰⁴ Gabel, “Nuclear Weapons after September 11,” 183.

¹⁰⁵ Michael Krepon, “Moving Away from MAD,” *Survival* 43, no. 2 (2001): 81. Krepon’s view seemed to disregard the 1998 report of the Commission to Assess the Ballistic Missile Threat to the United States and the National Missile Defense Act of 1999.

“lead and hedge” strategy were considered too conservative.¹⁰⁶ There were appeals for a nuclear dyad. Frank Miceli, affiliated at the time with Union College, wrote in 1995 that ICBMs have “no strategic value” and should be deactivated and the triad reduced to a dyad, predicated on improved U.S.–Russian arms control relations and the judgment that the United States needed to focus on countering “renegade nations and groups” with access to WMD.¹⁰⁷ In 1998, General Eugene Habiger, United States Air Force, Commander of USSTRATCOM, was quoted as saying that all the triad legs are critical—“All three legs of the triad bring something different and unique to the fight, and I cannot look anybody in the eye and say that one system is more crucial than any other”—and an important merit of the nuclear triad was a survivable reserve.¹⁰⁸ A 1998 Defense Science Board Task Force concluded that, even at reduced force levels (below START II levels), a nuclear triad was “essential” for deterrence credibility and international security stability, and noted that, as force levels decline, the relative value of each triad leg increases.¹⁰⁹ A 1999 Marine Corps Command and Staff College study of the nuclear triad reflected late 1990s political realities. The author recommended maintaining the nuclear triad but at reduced force levels because, while strategic deterrence was still a national security requirement, given shrinking defense spending, maintaining a complete triad was an inefficient use of national defense resources.¹¹⁰ The nuclear triad figured prominently in public debates, not least because of public interest in defense spending reductions following the end of the Cold War.

Public debates over the 1994 NPR and U.S. nuclear force structure looked at how force levels were calculated and what the implications were for stockpile stewardship and nuclear force modernization. For some NPR critics, the Clinton administration’s

¹⁰⁶ Gwendolyn M. Hall, John T. Cappello, and Stephen R. Lambert, *A Post–Cold War Nuclear Strategy Model* (U.S. Air Force Academy, CO: Institute for National Security Studies, 1998), 16.

¹⁰⁷ Frank Miceli, “Strategic Nuclear Weapons: A Force for the Post–Cold War World,” *Studies in Conflict & Terrorism* 18, no. 4 (1995): 335.

¹⁰⁸ Vago Muradian, “STRATCOM Considers Changes to Nuclear Triad,” *Defense Daily* 199, no. 1 (1998): 1.

¹⁰⁹ Defense Science Board, *Report of the Defense Science Board Task Force on Nuclear Deterrence* (Washington, DC: Office of the Under Secretary of Defense for Acquisition and Technology, 1998), 14.

¹¹⁰ William W. Uhle Jr., *The Case for Unilateral Nuclear Force Reductions* (Quantico, VA: Marine Corps Command and Staff College, 1999), 24.

recommended force levels were “arbitrary” and reflected no obvious strategic logic, and in their view the argument supporting the recommendation of a “hedge” force against Russia was convoluted.¹¹¹ But the actual force levels mirrored the 3,500 warheads allowed by START II. The 1994 NPR force structure recommendations were not arbitrary but entirely consistent with the planned START II force levels. By the second half of the 1990s, rising budgetary pressures prompted more public discussions of reducing strategic nuclear forces spending, even though strategic forces spending had dropped faster than other parts of the defense budget since 1985.¹¹² According to a 2000 GAO report, the Department of Energy, which managed the Stockpile Stewardship Program (SSP), saw its annual weapons budget fall from around \$8 billion in the late 1980s to around \$4.5 billion in the late 1990s, which program officials believed was not enough to fulfill the SSP’s broad mandate.¹¹³ Some commentators questioned the 1994 NPR force level recommendations but they were keyed to planned START II force goals. Concerns about the state of nuclear stockpiles began to surface by the end of the decade. Modernization was related to force levels. If the United States expected to get the same deterrent value out of a smaller arsenal, some analysts argued, delivery systems would need to be modernized (to retain or even increase their utility).

Debates about the force level changes associated with the 1994 NPR followed predictable marginalist and traditionalist patterns. Marginalizers wanted to freeze in the relatively “low-salience” world following the end of the Cold War by changing nuclear posture and doctrine and reducing force levels. Michael MccGwire wrote in 1995 that the “real choice” was between falling back into the high-salience zone reminiscent of Cold War tension or actively pursuing a nuclear-weapon-free world.¹¹⁴ Keith Payne argued that the 1994 NPR reflected marginalist thinking. According to Payne, marginalists held

¹¹¹ Robert A. Manning, “The Nuclear Age: The Next Chapter,” *Foreign Policy* 109 (1997–1998): 73.

¹¹² Defense Science Board, *Report of the Defense Science Board Task Force on Nuclear Deterrence*, 11.

¹¹³ U.S. Government Accountability Office, *Nuclear Weapons: Improved Management Needed to Implement Stockpile Stewardship Program Effectively*, by Gary L. Jones, GAO-01-48 (Washington, DC: Government Printing Office, 2000): 32.

¹¹⁴ Michael MccGwire, “Eliminate or Marginalize? Nuclear Weapons in U.S. Foreign Policy,” *Brookings Review* 13, no. 2 (1995): 36.

that nuclear weapons may exacerbate security concerns, since nuclear proliferation to rogue states like North Korea and Iraq might destabilize regional security or result in materials falling into the hands of terrorists; at the same time nuclear weapons may be employed to lessen security challenges by mitigating superpower rivalry and conflict.¹¹⁵ Cambone and Garrity suggested that traditionalists were as interested in preserving legitimacy for the use of nuclear weapons for deterrence as for maintaining any specific force levels.¹¹⁶ Some analysts concluded that the most prudent nuclear force posture was somewhere between the more extreme marginalist and traditionalist views.¹¹⁷ President Clinton's PDD-60 in November 1997, which followed three years after the 1994 NPR, seemed to systematize the 1994 NPR recommendations, and confirmed their official acceptance as policy. PDD-60 elaborated on many of the conclusions of the 1994 NPR and provided guidelines for maintaining nuclear deterrence and U.S. nuclear forces. PDD-60 specified that the United States "must maintain the assured response capability to inflict 'unacceptable damage' against those assets a potential enemy values most," endorsed planning for a range of options "to insure that the U.S. can respond to aggression in a manner appropriate to the provocation, rather than being left with an 'all or nothing' response," endorsed a policy of not relying on "launch on warning," but directed retention of the capability to respond promptly to any attack, and retention of flexible and survivable deterrent forces and related command and control.¹¹⁸ Public debates over the 1994 NPR force level changes were colored by demands for dramatic force reductions from arms reduction policy advocates, and demands from traditionalists to retain substantial parts of the Cold War posture, including the triad and a "first-use" policy.

¹¹⁵ Keith B. Payne "The Case Against Nuclear Abolition and For Nuclear Deterrence," *Comparative Strategy* 17, no. 1 (1998): 7–8.

¹¹⁶ Cambone and Garrity, "The Future of U.S. Nuclear Policy," 78.

¹¹⁷ Hall, Cappello, and Lambert, *A Post–Cold War Nuclear Strategy Model*, 6.

¹¹⁸ "PDD/NSC 60: Nuclear Weapons Employment Policy Guidance, November 1997," Federation of American Scientists, accessed September 6, 2014, <http://www.fas.org/irp/offdocs/pdd60.htm>.

2. Sole Purpose, “No–First–Use,” and Negative Security Assurances

Following the 1994 NPR, debates about the roles of nuclear weapons featured conflicting views on the principal threats and the utility of nuclear weapons. Some writers concluded that the second nuclear age was more “volatile”—in the sense of being more unpredictable—than the Cold War period.¹¹⁹ Russia and rogue states dominated perceptions of the threat environment in the mid-1990s—which was seen as still a “dangerous world”—and fueled commitment among some policy makers and analysts to protect investment in nuclear arsenals.¹²⁰ “Sole purpose” arguments surfaced, however, and were related to a belief in the diminishing utility of nuclear weapons. Andrew Goodpaster in 1997 presented a fairly typical “sole purpose” argument. Since in his view the United States had no need to threaten non-nuclear–weapon states with nuclear strikes, Goodpaster argued that the only useful role for nuclear weapons was to deter nuclear threats against the U.S. population and territory, U.S. deployed forces, and particular U.S. allies (a narrow conception of “sole purpose”).¹²¹ Keith Payne, in making a counterproliferation argument, pointed out that U.S. declaratory policy never considered nuclear weapons useful only for deterring nuclear threats, though such a nuclear–only principle was popular among some policy advocates (the “sole purpose” advocates) who saw it as a step toward complete nuclear disarmament.¹²² Some arguments linked a narrow role for nuclear weapons (sole purpose) to lower force levels (an argument for possessing no more weapons than necessary for a given narrow role). According to William Burns, writing in 1997, a National Academy of Sciences Committee on International Security and Arms Control study, “The Future of U.S. Nuclear Weapons Policy,” arrived at a “core mission” of countering nuclear use only and, given “the right” security environment, recommended a reduction to several hundred nuclear weapons to

¹¹⁹ See Fred Charles Iklé, “The Second Coming of the Nuclear Age,” *Foreign Affairs* 75, no. 1 (1996): 119–128; and Colin S. Gray, *The Second Nuclear Age* (Boulder, CO: Lynne Rienner, 1999).

¹²⁰ *H.N.S.C. No. 105–11: Threats to U.S. National Security*, 1–2.

¹²¹ Andrew J. Goodpaster, “The Declining Utility of Nuclear Weapons,” *Washington Quarterly* 20, no. 3 (1997): 91–95.

¹²² Keith B. Payne, “On Nuclear Deterrence and Assurance,” *Strategic Studies Quarterly* 3, no. 1 (2009): 44.

support the core mission only.¹²³ There was no agreement on a narrow purpose or a wider purpose, or a sole- or multiple-purpose role for nuclear weapons after 1994. The 1990s nuclear weapons policy debate attempted to define military utility for nuclear weapons in national security following the disappearance of the Soviet Union as a nuclear superpower and U.S. adversary.

NPR debates in the 1990s considered the functions of nuclear weapons, and the declaratory policy of no-first-use, which could not be separated from proliferation issues. The “sole purpose” debate (and issues of a nuclear taboo) aside, nuclear weapons have presented a wide range of possible uses—broad utility—at least in principle. In his 2001 study entitled *Sizing Post-Cold War Nuclear Forces*, I.C. Oelrich, a researcher with the Institute for Defense Analyses, presented four rationales for the possession of nuclear weapons: deterrence of attack by weapons of mass destruction (WMD), damage limitation, tactical war-fighting, and political prestige and virtual power.¹²⁴ Nuclear proliferation had been an issue during the Cold War, but after the 1990–1991 Gulf War proliferation concerns reemerged and the “proliferation problem” was identified by analysts as a “high stakes” issue, prompting policy makers to expand counterproliferation efforts beginning in the George H.W. Bush administration and continuing significantly during the Clinton administration.¹²⁵ A 1995 RAND study recommended reserving the option to use nuclear weapons to counter WMD threats.¹²⁶ According to Robert G. Spulak, for proponents of maintaining robust nuclear warfare capabilities, the 1994 NPR appeared designed to produce a “nuclear stigma” and masked a real desire for a nuclear-weapon-free world.¹²⁷ Traditionalists focused their arguments on the inherent uncertainty in the international security environment, and they opposed sharp changes in

¹²³ William F. Burns, “The Future of U.S. Nuclear Weapons Policy,” *Arms Control Today* 27, no. 7 (1997): 3–5.

¹²⁴ See I.C. Oelrich, *Sizing Post-Cold War Nuclear Forces* (Alexandria, VA: Institute for Defense Analyses, 2001), 23.

¹²⁵ Brad Roberts, “From Nonproliferation to Antiproliferation,” *International Security* 18, no. 1 (1993): 139.

¹²⁶ David C. Gompert, Ken Watman, and Dean A. Wilkening, *U.S. Nuclear Declaratory Policy: The Question of Nuclear First Use* (Santa Monica, CA: RAND, 1995), 23.

¹²⁷ See Robert G. Spulak Jr., “The Case in Favor of U.S. Nuclear Weapons,” *Parameters* 27 (Spring 1997): 106–118.

policy such as a no-first-use declaration.¹²⁸ Despite its arms control objectives, the Clinton administration did not change course on the “long-standing refusal” by U.S. leaders to rule out nuclear first-use.¹²⁹ Public debates about the role of nuclear weapons in the 1994 NPR included calls by some activists and commentators for a no-first-use policy, but that seemed to clash with growing WMD proliferation concerns.

Public debates about the 1994 NPR and the role of nuclear weapons seemed to pit those who recommended a narrow role—even a “sole purpose” approach—against those who were concerned about the need to deter a growing range of threats. Following the 1995 NPT Review Conference, there was “a lot of discussion” about linking nuclear deterrence to non-nuclear contingencies, even though the 1994 NPR had downplayed targeting non-nuclear-weapon states—leading some analysts to conclude that U.S. declaratory policy was to be prepared to use nuclear weapons in response to a wide range of threats.¹³⁰ Cambone and Garrity concluded that the 1994 NPR advanced no important policy agenda and that it did not alter existing declaratory policy—specifically, it did not recommend that the United States adopt a no-first-use policy—and it left open the possibility of retaliating with nuclear means against an adversary’s use of chemical and/or biological arsenals—a counterproliferation role for nuclear weapons.¹³¹ According to Joseph Pilat, by the 2000 NPT Review Conference it appeared that there was a significant lack of consensus among analysts and commentators on the usefulness of negative security assurances (NSAs) in the post-Cold War security environment.¹³² The 1994 NPR considered NSAs but they did not figure notably in the policy recommendations.

¹²⁸ Cambone and Garrity, “The Future of U.S. Nuclear Policy,” 78.

¹²⁹ See Andrew Butfoy, “Perpetuating U.S. Nuclear ‘First-Use’ into the Indefinite Future: Reckless Inertia or Pillar of World Order?” *Contemporary Security Policy* 23, no. 2 (2002): 149–168.

¹³⁰ Daryl G. Kimball, Janne E. Nolan, Rose Gottemoeller, and Morton H. Halperin, “Parsing the Nuclear Posture Review,” *Arms Control Today* 32, no. 2 (2002): 16.

¹³¹ Cambone and Garrity, “The Future of U.S. Nuclear Policy,” 74.

¹³² Joseph F. Pilat, “Reassessing Security Assurances in a Unipolar World,” *Washington Quarterly* 28, no. 2 (2005): 161.

3. Strategic Stability, Deterrence, and Counterproliferation

Strategic stability debates surrounding the 1994 NPR involved arms control and theories of achieving deterrence stability with smaller forces. Robert A. Manning, then a senior fellow at the Council on Foreign Relations, wrote in 1997, in commenting on the low likelihood of major power conflict, that the fundamental purpose and “measure of virtue” of arms control was to enhance strategic stability. Because Russia was part partner, part potential adversary, Manning argued, nuclear weapons doctrine was a mixture of MAD and reassurance.¹³³ Some lingering support for MAD with newer formulations of reassurance was understandable at the time, given the possibility of Russian political backsliding. A 1994 report to Congress, *Threat Control through Arms Control*, prepared by the Arms Control and Disarmament Agency, argued that arms control could play an essential part in U.S. national security strategy in the 1990s since arms control could address threats situated beyond the limits of military force. In other words, “Arms control is threat control.”¹³⁴ The interrelation of deterrence, force structure, strategic stability, and arms control changed very little through the 1990s. The concept of central deterrence and its related force structure, driven by the need to not invite a first strike from Moscow, continued in arms control debates.¹³⁵ Post–Cold War force structure analysts understood the need for more flexible deterrent options with lower numbers of strategic and non-strategic nuclear weapons, and for instruments more deployable than the heavy “positional” U.S. Air Force and Army forces that had historically reinforced NATO.¹³⁶ In considering deterrence stability at lower force levels, and the recommended 3,500 force level of the 1994 NPR, the authors of a 1998 Institute for National Security Studies paper argued for policy makers to engage more fully in a debate about the relationship between strategic stability and force numbers.¹³⁷ Deterrence

¹³³ Manning, “The Nuclear Age: The Next Chapter,” 77.

¹³⁴ See *Threat Control through Arms Control: Report to Congress* (Washington, DC: U.S. Arms Control and Disarmament Agency, 1994). The quote is from the “Director’s Overview” in the front matter.

¹³⁵ F.S. Nyland, *Some Potential Risks at Lower Levels of Strategic Nuclear Weapon Arsenals* (Idaho Springs, CO: Nyland Enterprises, 1998), 9.

¹³⁶ John Lehman, “U.S. Defense Policy Options: The 1990s and Beyond,” *Annals of the American Academy of Political and Social Science* 517 (September 1991): 193.

¹³⁷ Hall, Cappello, and Lambert, *A Post–Cold War Nuclear Strategy Model*, 45.

and arms control debates following the 1994 NPR considered how strategic stability could be achieved in the post–Cold War security environment.

The debates following the 1994 NPR considered new forms of deterrence. Some policy camps, by the end of the 1990s, had apparently recast deterrence in new forms to better address what was perceived as a new security environment, based partly on the prevailing Clinton administration policy and strategy (expressed in the 1994 NPR) of seeking to “lead” in arms reductions, but “hedge” against unexpected security challenges. According to a 2001 National Institute for Public Policy report, policy makers should replace their focus on weapons numbers and types with recognition of the need for capabilities to deter a wide range of actors under varying circumstances.¹³⁸ In the late 1990s, some analysts asked whether a smaller arsenal could still provide sufficiently robust deterrence, given the rise of WMD–armed rogue states and non-state actors—so-called emerging threats—and raised concerns that the United States was making commitments to reduce arsenals.¹³⁹ One of the significant debates during the 1990s concerned whether deterrence “can be, or should be, modified from its bilateral meaning during the Cold War to deterrence of potential proliferators presumably from the Third World, including the so-called ‘rogue’ states.”¹⁴⁰ Thinking about rogue states seemed to push explorations of deterrence models different from those favored during the Cold War. A 1995 USSTRATCOM paper entitled *Essentials of Post–Cold War Deterrence* discussed ambiguity and deterrence, country- and leader-specific deterrence plans, and weaknesses of NSAs.¹⁴¹ This paper appeared to be an early attempt to define post–Cold War deterrence in a systematic manner. Post–Cold War assessments of threats by some commentators fueled interest in exploring new forms of deterrence in order to increase (or return to) high–confidence deterrence.

¹³⁸ Keith B. Payne, study director, *Rationale and Requirements for U.S. Nuclear Forces and Arms Control, Vol. 1: Executive Report* (Fairfax, VA: National Institute for Public Policy, 2001), 2, 12.

¹³⁹ Robert J. Filler, *U.S. Strategic Nuclear Forces in the Post Strategic Arms Reduction Talk World: Is There a Future for Nuclear Deterrence?* (Carlisle Barracks, PA: U.S. Army War College, 1998), iii, 1.

¹⁴⁰ Andrew J. Goodpaster and C. Richard Nelson, *Post–Cold War Conflict Deterrence* (Washington, DC: National Academy Press, 1997), 108.

¹⁴¹ *Essentials of Post–Cold War Deterrence*, Headquarters, United States Strategic Command, 1995, 2–3, <http://www.nukestrat.com/us/stratcom/SAGessentials.PDF>.

Proliferation and counterproliferation were prominent themes in public debates over the 1994 NPR. The 1994 NPR was believed by some to have diminished the national security profile (or role) of nuclear weapons. Hans Kristensen claimed that counterproliferation mission requirements development and planning continued parallel to the Clinton Nuclear Posture Review, and that the 1994 NPR assigned a “prominent” counterproliferation role to nuclear weapons in the post–Cold War security environment.¹⁴² Writers who were skeptical about the counterproliferation mission, including Hans Kristensen and Joshua Handler, argued that there was only weak evidence to support the use of nuclear weapons to prevent the proliferation of WMD.¹⁴³ But it seemed that these arguments did not consider the role of dissuasion. Keith Payne argued that the requirements for a counterproliferation nuclear role might actually increase due to the failure of nonproliferation regimes.¹⁴⁴ According to a 1994 Air War College study, there was a need for updated deterrence policies to account for the different motives of proliferators.¹⁴⁵

Joachim Krause wrote in 2007 that some members of the Clinton administration believed that they confronted three “imperatives”—controlling so-called loose nukes in the former Soviet Union; deterring rogue states (authoritarian regimes, openly in violation of NPT treaty obligations); and defining a new role for nuclear weapons that garnered international acceptance and preserved the legitimacy of nuclear weapons. To counter the rogue states challenge, the administration “had no other choice” but to promote counterproliferation (and it suffered some backlash from the disarmament community for this): “Given that North Korea, Iraq, Libya and Iran were quite problematic regimes, and given that the traditional instruments of technology denial were

¹⁴² Kristensen, “Targets of Opportunity,” 24.

¹⁴³ See Hans M. Kristensen and Joshua Handler, “The USA and Counter–Proliferation: A New and Dubious Role for U.S. Nuclear Weapons,” *Security Dialogue* 27, no. 4 (1996): 387–399.

¹⁴⁴ Keith B. Payne, “Post–Cold War Deterrence and Missile Defense,” *Orbis* 39, no. 2 (1995): 202.

¹⁴⁵ See Jo Vonnice D. Cole, *Beyond Stalemate: Deterrence and Nonproliferation in the New World Order* (Maxwell AFB, AL: Air War College, 1994).

becoming less and less effective, there was no alternative to involving the military on a larger scale as part of the overall non-proliferation effort.”¹⁴⁶

Hans Kristensen asserted that USSTRATCOM led counter–marginalization (or traditionalist) efforts during the 1994 NPR, and he suggested that the 1997 Quadrennial Defense Review (QDR) seemed to indicate that traditionalists had won some important policy debates within the administration by that time. Most significantly, the QDR named a counterproliferation role for nuclear weapons, and declared that the United States continued to need a flexible and survivable nuclear deterrent.¹⁴⁷ After the completion of the 1994 NPR, there was an expanding policy focus on counterproliferation, rogue states and WMD threats. Counterproliferation (with respect to the nuclear posture and the NPRs) seemed to be much more of an issue with commentators (especially arms control and disarmament proponents) than with policy makers or NPR participants. In public debates, deterrence was at times equated with preventing WMD use, which effectively linked deterrence to counterproliferation.

¹⁴⁶ Joachim Krause, “Enlightenment and Nuclear Order,” *International Affairs* 83, no. 3 (2007): 496.

¹⁴⁷ Kristensen, “U.S. Nuclear Strategy Reform in the 1990s,” 7.

III. THE 2001 NUCLEAR POSTURE REVIEW

Douglas Feith, then the Under Secretary of Defense for Policy, in testimony submitted during the Senate Armed Services Committee hearing on the 2001 Nuclear Posture Review, on February 14, 2002, stated that “The primary purpose of the 1994 review was to determine the strategic nuclear force structure to be deployed under the second Strategic Arms Reduction Treaty (START II).”¹⁴⁸ Secretary of Defense Donald Rumsfeld explained the proposed post–Cold War nuclear force structure in his foreword to the 2001 Nuclear Posture Review Report. Rumsfeld observed that there were “few changes” to force posture other than those required by START I, and that there were no significant changes to employment policy.¹⁴⁹ The U.S. nuclear posture in the 1990s was characterized by the concepts of “lead and hedge,” with lower force levels and an emphasis on stockpile stewardship. The U.S. nuclear force posture during the 1990s changed primarily in size (though there were also some alert status changes for strategic bombers).

A. KEY DECISIONS

Rogue regimes and WMD proliferation figured prominently in the assessment of threats included in the 2002 National Security Strategy, and there was a prominent role for counterproliferation (a broad, multifaceted response including “strengthened alliances,” novel approaches to the use of military forces, and “an effective missile defense system”).¹⁵⁰ The 2001 Quadrennial Defense Review stressed new capabilities, approaches, and methods to deter conflict. The 2001 QDR examined “new deterrence tools” and improvements to extended deterrence protection of allies and partners through

¹⁴⁸ Douglas J. Feith, *Statement before the Senate Armed Services Committee hearing on the Nuclear Posture Review*, February 14, 2002, 1.

¹⁴⁹ Donald H. Rumsfeld, *Foreword to Nuclear Posture Review Report* (Washington, DC: Department of Defense, January 8, 2002). See file, “Special Briefing on the Nuclear Posture Review.”

¹⁵⁰ George W. Bush, *The National Security Strategy of the United States of America* (Washington, DC: The White House, 2002), 14.

“missile defenses, defensive information operations, and counter–terrorist operations.”¹⁵¹ Key decisions of the 2001 Nuclear Posture Review were guided by the priorities of the New Triad, force reductions, and counterproliferation. The 2001 NPR focused on applying new concepts in a conscious attempt to break with Cold War era defense planning. One of the goals was to achieve greater flexibility, which was seen as needed because of international security unpredictability.

1. Role of Nuclear Weapons

The 2001 Nuclear Posture Review recognized a broad conception of national security goals as well as the enduring critical value of nuclear weapons. The role of nuclear weapons was, however, less clear than during the Cold War. Leaked portions of the 2001 NPR described the function of nuclear weapons as providing “credible military options” to deter a wide range of potential threats, “including WMD and large–scale conventional military force,” given the unique characteristics of nuclear weapons in holding at risk adversary targets not vulnerable to non-nuclear means.¹⁵² The 2001 NPR outlined a broad range of roles for nuclear weapons. A way of understanding the relevance of nuclear weapons is to look at the national security goals that they serve. Keith Payne explained that nuclear weapons serve goals beyond those suggested by their “military characteristics,” and that deterrence, assurance, and dissuasion more clearly indicated the other U.S. goals of protecting allies, restricting the proliferation of WMD, and discouraging potential adversaries from challenging U.S. power and interests. The enduring use of nuclear weapons as a “withheld threat” highlighted the central role of nuclear weapons in national security.¹⁵³ As noted above, the roles of nuclear weapons included assuring U.S. allies. The national security goal of assurance was essential to protecting U.S. global alliance frameworks, and supported a continuing role of providing a nuclear umbrella.¹⁵⁴ A continuing function of nuclear weapons, especially to hedge

¹⁵¹ U.S. Department of Defense, *Quadrennial Defense Review (QDR) Report* (Washington, DC: Department of Defense, 2001), 25.

¹⁵² *Nuclear Posture Review [Excerpts]*, submitted to Congress December 31, 2001, dated January 8, 2002, 3, <http://www.stanford.edu/class/polisci211z/2.6/NPR2001leaked.pdf>.

¹⁵³ *H.A.S.C. No. 110–73: U.S. Nuclear Weapons Policy*, 71.

¹⁵⁴ *Ibid.*, 72.

against uncertainty concerning “existing nuclear powers,” was to serve as a visible sign of security commitments to U.S. allies, including those in NATO.¹⁵⁵ The 2001 NPR viewed nuclear weapons as a credible deterrent, even given the changed, post–Cold War security environment, and as providing needed flexibility. Assuming a security context very different from the one that prevailed during the Cold War, the 2001 NPR asserted that a combination of capabilities would provide flexibility in options to deter potential adversaries motivated by different values and risk perceptions.¹⁵⁶ The national security goals of assure, dissuade, deter, defend and defeat—expressed in the 2001 QDR—underpinned how the 2001 NPR assessed the role of nuclear weapons.

The 2001 NPR’s key decisions regarding the roles of nuclear weapons were influenced by the perception that there were more threats to address and counter than during the Cold War. There was a general conception that the rise of “new” threats required an updated deterrent strategy. Keith Payne, the primary author of the 2001 NPR, argued for keeping deterrence but adapting it to the most serious threats.¹⁵⁷ In his 2002 Annual Report, Rumsfeld explained that the 2001 NPR acknowledged “new dangers” in the threat environment, a “substantially” different security environment than at the time of the 1994 NPR; that Russia was no longer “an enemy”; that new kinds of potential enemy leaders were less predictable; that terrorists and rogue states were determined to acquire WMD; and that the “dominant strategic considerations” included surprise developments and the “ubiquity of uncertainty.”¹⁵⁸ The 2001 NPR warned against potentially hostile states acquiring WMD capabilities. WMD–armed rogue states could threaten neighboring states directly through coercion and dominate regions, and threaten regional security indirectly by transferring WMD–related means and knowledge to

¹⁵⁵ William S. Cohen, *Annual Report to the President and the Congress* (Washington, DC: Office of the Secretary of Defense, 2000), 6.

¹⁵⁶ *Nuclear Posture Review [Excerpts]*, 3.

¹⁵⁷ H.A.S.C. No. 110–73: *U.S. Nuclear Weapons Policy*, 11.

¹⁵⁸ Donald H. Rumsfeld, *Annual Report to the President and the Congress* (Washington, DC: Office of the Secretary of Defense, 2002), 83–84.

terrorists.¹⁵⁹ The threat of WMD proliferation was seen as alarming given predictions about the gradual increase in the number of nuclear states.¹⁶⁰

According to a 2008 Department of Defense document titled *National Security and Nuclear Weapons in the 21st Century*, the 2001 NPR distinguished between immediate, potential, and unexpected challenges (or contingencies)—Russia was no longer assessed as an immediate threat—and concluded that the recommended force size of 1,700–2,200 operationally deployed strategic nuclear warheads (ODSNW) was sufficient to assure allies and dissuade potential adversaries.¹⁶¹ The Bush administration and the 2001 NPR concluded that a new policy framework and defense planning approach were necessary to adapt nuclear policy, strategy, and force structure to a “rapidly changing security environment.”¹⁶² The New Triad was part of the new framework. In the 2001 NPR, the Bush administration conceptually reorganized the Cold War nuclear triad into a New Triad comprising the old nuclear triad of the Cold War period (ICBMs, SLBMs, and bombers) combined with offensive conventional strike forces as one leg, active and passive defenses as a second leg, and a responsive defense–industrial complex as the third leg. Responsiveness, in this case, was defined primarily as the ability to reconstitute a larger arsenal in a short time. The New Triad was controversial because arms reduction advocates charged that the Bush administration was trying to increase the role of nuclear weapons in national security, despite its declaratory policy objective to reduce the role. The 2001 NPR’s key decisions regarding the role of nuclear weapons represented a break in continuity in how the threats for which nuclear weapons are potentially used were conceived, and appeared to be shaped at least partially by events of September 11, 2001.

¹⁵⁹ U.S. Department of Defense, *Quadrennial Defense Review (QDR) Report* (Washington, DC: Department of Defense, 2006), 32.

¹⁶⁰ *S. Hrg. 105–587: Current and Projected National Security Threats to the United States*, Hearing before the Select Committee on Intelligence of the United States Senate, 105th Cong., 2nd sess., 1998, 61.

¹⁶¹ U.S. Department of Defense, *National Security and Nuclear Weapons in the 21st Century* (Washington, DC: Department of Defense, 2008), 14–15. ODSNW were explained in the 2001 NPR: “Warheads that will count as operationally deployed are: for ballistic missiles, the actual number of nuclear weapons loaded on the ICBMs or SLBMs; for bombers, those nuclear weapons located in weapon storage areas at bomber bases (except for a small number of spares).” *Nuclear Posture Review [Excerpts]*, 16.

¹⁶² *National Security and Nuclear Weapons in the 21st Century*, 1.

The 2001 NPR examined the utility of nuclear weapons in achieving defense policy goals. The 2001 *Quadrennial Defense Review* report described the following defense policy goals: to dissuade future “military competition”; to assure allies and partners; to deter threats; and to defeat threats if deterrence failed.¹⁶³ There was a realization that more was needed than just an offensive deterrent force of nuclear weapons. According to Rumsfeld’s 2002 Annual Report, the 2001 NPR concluded that offensive nuclear weapons alone could not suffice to meet defense policy goals and that a new approach to deterrence was needed to counter “the challenges of surprise and uncertainty.”¹⁶⁴ The 2005 *National Defense Strategy* discussed the assure, dissuade, deter, and defeat goals as focused on entities that threatened to harm the United States directly, especially “extremist enemies” with WMD, “key states” and “problem states.”¹⁶⁵ This strategy document emphasized the importance of a capabilities-based approach to defense planning. Congressional testimony in January 2002 on the 2001 NPR revealed that a more flexible capabilities-based approach to defense planning included assessing the widest range of potential threats and adversaries.¹⁶⁶ The 2001 NPR focused on potential challengers to U.S. interests or the interests of allies and partners, and considered dissuasion by military forces alone, including nuclear forces.¹⁶⁷ There were clear and repeated attempts by Bush administration officials to link the role of nuclear weapons to the achievement of defense policy goals.

2. Theory of Deterrence

In looking at conceptions of deterrence theory around the time of the 2001 NPR, Bush administration officials considered traditional topics like strategic stability and newer topics like tailored deterrence. The 2006 *National Security Strategy* discussed

¹⁶³ U.S. Department of Defense, *Quadrennial Defense Review (QDR) Report* (Washington, DC: Department of Defense, 2001), 11.

¹⁶⁴ Rumsfeld, *2002 Annual Report*, 84.

¹⁶⁵ U.S. Department of Defense, *The National Defense Strategy of the United States of America* (Washington, DC: Department of Defense, 2005), iv, 4.

¹⁶⁶ *S. Hrg. 107-677: Examining the Nuclear Posture Review*, Hearing before the Committee on Foreign Relations, United States Senate, 107th Cong., 2nd sess., 2002, 43.

¹⁶⁷ *Nuclear Posture Review [Excerpts]*, 3.

tailored deterrence (referencing the 2006 QDR) in the context of future force capabilities that would effectively deter—in a tailored fashion—different threats, including non-state threats, and still assure allies and partners.¹⁶⁸ In the 2002 Annual Report, Rumsfeld stated that the United States required an appropriate mix of capabilities to meet a broad range of contingencies. The 2001 NPR recommended a broad-capabilities approach—a mix of offensive and defensive, and nuclear and conventional assets—so that the United States would not have to depend solely on nuclear weapons and retaliatory threats for deterrence.¹⁶⁹ The 2006 *National Security Strategy* captured post-9/11 strategic thinking and indicated the extent to which some ideas developed in the 2001 NPR were becoming more widely accepted in the defense community. The 2006 NSS called for new approaches to deterrence and defense planning, declared that U.S. deterrence was no longer based essentially on “grim” threats of massive retaliation, and explained that deterrence by denial, of both state and non-state actors, could be achieved more effectively by using a combination of offensive and defensive capabilities.¹⁷⁰ Moving beyond MAD was apparently conceptualized in part as pursuing offensive and defensive capabilities to threaten an adversary with operational defeat instead of punishment.

Tailored deterrence, which was presented at times as a new concept, emphasized that not all factors of the deterrence equation, including the threat to be deterred, could be adequately anticipated; tailored deterrence was an attempt to return deterrence to a solvable (or workable) formulation in the post–Cold War security environment.¹⁷¹ After recognizing that the United States would continue to face diverse threats, the 2006 QDR stated that the Department of Defense had begun taking steps to operationalize tailored

¹⁶⁸ George W. Bush, *The National Security Strategy of the United States of America* (Washington, DC: The White House, 2006), 42.

¹⁶⁹ Rumsfeld, *2002 Annual Report*, 84.

¹⁷⁰ Bush, *The National Security Strategy*, 22. Deterrence by denial refers to denying an adversary the ability to achieve its political and military objectives through aggression. See Michael S. Gerson, “Conventional Deterrence in the Second Nuclear Age,” *Parameters* 39 (Autumn 2009): 32–48.

¹⁷¹ *S. Hrg. 110–205: Nuclear and Strategic Policy Options*, Subcommittee on Strategic Forces of the Committee on Armed Services, 110th Cong., 1st sess., 2007, 55. Tailored deterrence refers to adapting deterrent approaches to the perceptions, beliefs, values, interests, and probable strategic calculations of specific adversaries. See Director, Plans and Policy, *Deterrence Operations Joint Operating Concept*, Version 2.0 (Offutt AFB, NE: Strategic Command, December 2006).

deterrence (or “more tailorable approaches appropriate for advanced military competitors, regional WMD states, as well as non-state terrorist networks”).¹⁷² In its theory of deterrence, the 2001 NPR was influenced by ideas about how tailored deterrence more adequately addressed the post-9/11 threat environment than previous approaches to threat assessment and capability development.

In considering deterrence stability, 2001 NPR participants examined nuclear security assurances to allies and the nonproliferation effects of extended deterrence. Department of Defense publications at the time established the role of nuclear weapons in deterring the use of WMD and in achieving more traditional goals, including extended deterrence (and assurance) and holding at risk targets beyond the reach of non-nuclear means. According to the 2002 Annual Report, the New Triad would deter WMD threats, assure allies, hold at risk adversary targets invulnerable to non-nuclear capabilities, and dissuade potential adversaries from developing nuclear and conventional capabilities that might threaten the interests of the United States and its allies and partners. These achievements would support nonproliferation goals—all at about one-third the number of operationally deployed warheads at that time (after planned warhead cuts were effective).¹⁷³ Despite the concerns of some commentators, such as Daryl Kimball and Wolfgang Panofsky, Keith Payne argued that assurance was a necessary defense policy goal (given the contemporary security environment) because allies would decide whether they deemed themselves assured, and because there was a concomitant nonproliferation effect—most importantly, nuclear weapons assured allies to “a level they deem adequate.”¹⁷⁴ Payne defended extended deterrence and the 2001 NPR’s support of nonproliferation. Credible nuclear deterrence is linked to nonproliferation, he explained, because assured allies would forgo possession of nuclear weapons. Payne called this possibly the most effective “inhibitor” of global proliferation.¹⁷⁵ The 2001 NPR’s conclusion, Payne continued, that credible deterrence supported nuclear nonproliferation

¹⁷² U.S. Department of Defense, *Quadrennial Defense Review (QDR) Report*, 49.

¹⁷³ Rumsfeld, *2002 Annual Report*, 86.

¹⁷⁴ Payne, “On Nuclear Deterrence and Assurance,” 56.

¹⁷⁵ Payne, “Setting the Record Straight,” 146.

(and that the goals of a credible nuclear deterrent and nonproliferation were linked and complementary) was therefore sound.¹⁷⁶ The 2001 NPR's theory of deterrence acknowledged the importance of allies and partners, the links between nuclear weapons and assurance and extended deterrence, and the ways in which pursuit of a credible deterrent may contribute to the achievement of nonproliferation goals.

Key deterrence stability decisions of the 2001 NPR addressed alert status issues and missile defense. Leaked excerpts of the classified 2001 NPR report indicated that participants addressed force alert status issues and noted that U.S. forces were not on "hair trigger" alert.¹⁷⁷ According to the leaked text of the 2001 NPR report, "The elimination of the Peacekeeper ICBM will be phased to correspond with the introduction of the Trident II (D-5) missile in the Pacific. As they are eliminated, those Peacekeeper missiles remaining during the elimination process will be kept on alert to provide a necessary contribution to the U.S. portfolio of capabilities."¹⁷⁸ The issue of alert status came up in the primary Senate Hearing to discuss the 2001 NPR results. Loren Thompson of the Lexington Institute, in a 2002 Senate hearing which reviewed the foreign policy implications of the 2001 NPR, noted that heavy bombers have multiple missions and would not normally remain on strip alert loaded with nuclear weapons, that around 500 Minuteman ICBMs would remain on alert, and that 8 SSBNs would typically remain at sea.¹⁷⁹ Concerning missile defense of U.S. territory and U.S. forces deployed outside the United States, the 2001 NPR concluded that deterrence credibility, including the credibility of extended deterrence, would be served by effective missile defense coupled with the ability to create certainty in the minds of adversary leaders as to U.S. capabilities to effectively retaliate with strikes.¹⁸⁰ The combination of defensive means and offensive strike capabilities might improve U.S. calculations about the risks and

¹⁷⁶ Ibid.

¹⁷⁷ *Nuclear Posture Review [Excerpts]*, 17.

¹⁷⁸ Ibid.

¹⁷⁹ *S. Hrg. 107-677: Examining the Nuclear Posture Review*, 54. According to a critic of the 2001 NPR and long-standing U.S. policy, Joseph Cirincione, "The review advocates maintaining a substantial force of high-alert nuclear weapons for the indefinite future. This encourages other nations, particularly Russia, to maintain or construct larger forces than they otherwise would." Ibid., 48.

¹⁸⁰ *Nuclear Posture Review [Excerpts]*, 4.

stakes in regional conflicts. Loren Thompson testified in Senate Hearing 107–677 that the majority of heavy bombers would be tasked “primarily” with conventional missions and that “many” SSBNs would remain in port.¹⁸¹ Bush administration officials testified about reduced alert status in congressional hearings on the 2001 NPR.

3. Force Structure

Key force structure decisions of the 2001 NPR aimed to increase defense planning flexibility while reducing the number of operationally deployed strategic nuclear weapons systems. The 2001 NPR arrived at the following force levels and force structure, to be achieved by 2012: an operationally deployed force of 1,700–2,200 strategic nuclear warheads; 14 Trident SSBNs (with two of the 14 in overhaul at any time), 500 Minuteman III ICBMs, 76 B-52H heavy bombers, and 21 B-2 bombers.¹⁸² The 2001 NPR specified that the goal of an operationally deployed force including 1,700–2,200 warheads by 2012 was keyed to assessments of immediate and unexpected contingencies (or a “surprise development”).¹⁸³ This was practically the same as the hedge force of the 1994 NPR. The 2001 NPR identified an inactive stockpile, the size of which would depend at least partially on the capacity of the nuclear weapon complex (supervised by the National Nuclear Security Administration) to refurbish and dismantle weapons: between approximately 350 and 600 weapons per year, given funding of an NNSA–proposed plan.¹⁸⁴

Force sizing after the 2001 NPR was not an exact procedure. Sidney Drell, then a Hoover Institution Senior Fellow and Professor Emeritus at Stanford University’s Linear Accelerator Center, testified in 2007 that the size and scope of the modernized nuclear weapon infrastructure could not be effectively determined because of a lack of long-term policy guidance about nuclear weapon roles and missions; total warhead numbers could

¹⁸¹ *S. Hrg. 107–677: Examining the Nuclear Posture Review*, 41.

¹⁸² *Nuclear Posture Review [Excerpts]*, 6.

¹⁸³ *Ibid.*

¹⁸⁴ *Nuclear Posture Review [Excerpts]*, 10.

be around 5,000 (the level at that time) down to about 500.¹⁸⁵ According to NPR participants, the 2001 NPR force levels were meant to improve global security, preserve deterrence stability while completing “huge reductions” in U.S. and Russian arsenals, reduce reliance on nuclear deterrence by acquiring offensive and defensive conventional capabilities for coping with accident-prone or irrational adversaries, and provide expanded response options for future strategic leaders.¹⁸⁶ The Bush administration pursued reductions in operationally deployed strategic nuclear warheads through arms control with Russia while relying on the ability of the nuclear weapon infrastructure to successfully maintain reserve warheads as a hedge force.

Force structure decisions of the 2001 NPR focused on cutting operationally deployed strategic nuclear warheads and implementing the New Triad while maintaining defense planning flexibility. The 2001 NPR anticipated an operationally deployed force size of 3,800 warheads by the end of fiscal year 2007 (a 40 percent reduction in the number of operationally deployed strategic nuclear warheads at the time of the NPR) but observed that force structure would be mainly preserved: “The drawdown of the operationally deployed strategic nuclear warheads will preserve force structure in that, aside from the Peacekeeper ICBM and the four Trident SSBNs, no additional strategic delivery platforms are scheduled to be eliminated from strategic service.”¹⁸⁷ The aim appeared to be to draw down operationally deployed force levels without losing significant capabilities in addition to the Peacekeeper ICBMs and the four Trident SSBNs. Looking beyond 2012, the 2001 NPR recommended long-term planning studies to examine options for fully realizing the potential of nuclear forces in the New Triad.¹⁸⁸ Recommended force levels for operationally deployed systems were defined in order to preserve flexibility, protect the ability to reconstitute, and adapt to varied security developments. In order to achieve the defense policy goals of “dissuading potential adversaries, assuring allies, deterring aggression, and defeating enemies,” the United

¹⁸⁵ S. Hrg. 110–205: *Nuclear and Strategic Policy Options*, 63.

¹⁸⁶ S. Hrg. 107–677: *Examining the Nuclear Posture Review*, 43–44.

¹⁸⁷ *Nuclear Posture Review [Excerpts]*, 16.

¹⁸⁸ U.S. Department of Defense, *Nuclear Posture Review: Implementation Plan*, February 2003, 22.

States would need to retain a responsive nuclear weapons capability.¹⁸⁹ Brian R. Green, then the Deputy Assistant Secretary of Defense for Strategic Capabilities, Office of the Under Secretary of Defense for Policy, testified in 2007 about the progress in implementing the 2001 NPR recommendations. Green said that the Bush administration was on track to achieve the level of 1,700–2,200 operationally deployed strategic nuclear warheads by 2012, that the last Peacekeeper ICBMs had been retired, and that there were plans for the Department of Defense to cut 50 deployed Minuteman III ICBMs and 38 B-52 heavy bombers (as scheduled).¹⁹⁰ The 2001 NPR had the challenge of adjusting force levels without excessively cutting strategic capabilities, given the focus on unpredictability and the need for deterrence reliability. The 2002 Moscow Treaty level of 1,700–2,200 warheads referred specifically to operationally deployed warheads “mated to deployed delivery vehicles or in storage areas at bomber bases,” but it did not include logistics spares.¹⁹¹

Key force structure decisions of the 2001 NPR related to the New Triad touched on issues of defense planning flexibility, pursuit and protection of key defense capabilities, and reduced dependence on nuclear weapons and nuclear deterrence. To realize the suite of programs that together made up the New Triad and to reach the 1,700–2,200 force level for 2012, the Department of Defense acknowledged that it would need to plan, assess, and develop elements of the New Triad over time through systematic processes coordinated with the Planning, Programming and Budgeting System (PPBS) process.¹⁹² In 2002 Admiral James O. Ellis, Commander in Chief, United States Strategic Command, testified in a prepared statement to the Senate Armed Services Committee that

¹⁸⁹ Feith, *Statement before the Senate Armed Services Committee*, 9. According to Feith, the United States should retain a responsive nuclear weapons capability to give the option to adjust the number of operationally deployed nuclear weapons should the international security environment change. Ibid.

¹⁹⁰ *S. Hrg. 110–201, Pt. 7: Department of Defense Authorization for Appropriations for Fiscal Year 2008*, Hearings before the Committee on Armed Services, United States Senate, 110th Cong., 1st sess., 2007, 61.

¹⁹¹ “Strategic Offensive Forces and the Nuclear Posture Review’s ‘New Triad,’” National Institute for Public Policy, March 2003, 13.

¹⁹² *Nuclear Posture Review: Implementation Plan*, 25. The term PPBS refers to the Department of Defense’s formalized multi-year resource management process. For more, see Milton L. Tulkoff, C. Vance Gordon, Rachel D. Dubin, and Wade P. Hinkle, *Planning, Programming, and Budgeting System (PPBS)/Multi-year Programming Reading Guide* (Alexandria, VA: Institute for Defense Analyses, 2010).

the advantages of the completed New Triad would include “improved strategic strike forces, active and passive defenses, and a responsive infrastructure all supported by improved command and control as well as robust intelligence and planning capabilities.”¹⁹³ “This New Triad,” Ellis continued, “can broaden the definition of strategic forces, enhance deterrence concepts against a wider range of threats and offer dramatic improvements in the speed, accuracy and agility of the full range of our nation’s military response.”¹⁹⁴

The Bush administration used the 2001 NPR to conceive broad, comprehensive defense changes of which the New Triad was probably the most significant. The New Triad, as a diverse array of options for countering a broad array of “possible contingencies,” was a result of the Department of Defense applying the capabilities-based approach to nuclear forces.¹⁹⁵ Secretary of Defense Donald Rumsfeld’s 2002 Annual Report described the 2001 NPR as a “blueprint for transforming our strategic posture” and stated that it represented “a major departure in our approach for managing strategic issues.”¹⁹⁶ Transformation of the U.S. nuclear posture was meant to complement transformation of conventional forces for a new understanding of the security environment, which participants in the 2001 NPR recognized was substantially different from that of the early 1990s. There was a recognition that Cold War deterrence models and expectations would not apply to all potential post–Cold War adversaries or threat circumstances. In 2006, however, uneven progress was reported on achieving all aspects of New Triad as spelled out in 2001 NPR: “The only robust capability in the New Triad is the Old Triad—the legacy nuclear forces of land-based ICBMs, sea-based SLBMs, and

¹⁹³ *Statement of Admiral James O. Ellis, Commander in Chief, United States Strategic Command Before the Senate Armed Services Committee on the Nuclear Posture Review*, February 14, 2002, 7.

¹⁹⁴ *Ibid.*

¹⁹⁵ Rumsfeld, *2002 Annual Report*, 85.

¹⁹⁶ Donald H. Rumsfeld, *Annual Report to the President and the Congress* (Washington, DC: Office of the Secretary of Defense, 2002), 83–84. Ch. 7, “Adapting U.S. Strategic Forces,” discussed the New Triad.

strategic bombers.”¹⁹⁷ The 2001 NPR’s New Triad was extremely ambitious in its goals but only moderately realized in practice.

B. PUBLIC DEBATES

Brian R. Green argued, in his prepared statement before Congress in 2007, referring to the 2001 NPR results, that the New Triad was designed to reduce U.S. dependence on nuclear weapons, and to provide a suite of capabilities to address “new security risks.” In Green’s words, “nuclear capabilities possess unique properties and provide credible military options to deter a wide range of threats, including WMD use.”¹⁹⁸ By 2001, scholars like Robert G. Joseph of National Defense University were arguing that defenses, such as ballistic missile defenses, were increasingly relevant to strategic deterrence and that the United States would need to be “realistic” about the role that arms control could play in maintaining strategic stability (in other words, arms control should not be allowed to undermine credible deterrence).¹⁹⁹ The public debates that followed the 2001 NPR were at times intense and contentious. Critics were influenced by widespread and inaccurate impressions that the Bush administration was expanding the role of nuclear weapons, threatening strategic stability, and undermining arms control efforts. The 2001 NPR prompted numerous debates, but some of the debaters conflated the policy recommendations of the 2001 NPR and other foreign and defense policies of the George W. Bush administration.

1. New Nuclear Weapon Capabilities, Utility, and Nuclear Use

Some public debates about the role of nuclear weapons in the 2001 NPR stemmed from issues and concerns about proliferation, nuclear terrorism, so-called “new” threats, and whether the United States needed to build new or modified nuclear weapons.

¹⁹⁷ Defense Science Board, *Report of the Defense Science Board Task Force on Nuclear Capabilities Report Summary* (Washington, DC: Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, 2006), 14.

¹⁹⁸ *S. Hrg. 110–201, Pt. 7: Department of Defense Authorization for Appropriations for Fiscal Year 2008*, 60–61.

¹⁹⁹ Robert G. Joseph, “The Role of Nuclear Weapons in U.S. Deterrence Policy,” in *Deterrence in the 21st Century*, ed. Max G. Manwaring (London: Frank Cass, 2001), 59.

For example, Senator Russell Feingold argued before the Committee on Foreign Relations that low-yield warheads (called “mini-nukes” by some 2001 NPR critics) would be more likely to be used than higher-yield weapons. In Feingold’s view, the development of low-yield warheads could launch a new arms race as other states might perceive a need to match U.S. capabilities.²⁰⁰

Some commentators drew a connection between preemption and low-yield warheads. The George W. Bush administration never officially articulated such a connection, but critics attributed such a policy to the administration. Some critics reasoned that use of low-yield nuclear weapons would be more controllable than that of higher-yield weapons and that low-yield nuclear weapons could be used against highly protected terrorist cells with almost none of the consequences that characterized the use of traditional nuclear weapons. According to Andrei Kokoshin, based in part on information revealed in the early 2002 leaks, the authors of the 2001 NPR favored the development of low-yield nuclear weapons and maintained that such weapons would not signify a reduction of the “nuclear threshold.”²⁰¹

According to James Doyle, then a political scientist and nonproliferation scholar at Los Alamos National Laboratory, the 2001 NPR was not focused on denying terrorists access to weapons and materials but on the roles and types of nuclear weapons needed to effectively influence the leaders of states determined to be hostile to the United States. Doyle claimed that elements of the 2001 NPR led to questions about U.S. nonproliferation commitments. Some states perceived U.S. policy as a “repudiation” of the Thirteen Practical Steps on disarmament, and some states questioned the U.S. commitment to NPT obligations as a nuclear-weapon state.²⁰²

²⁰⁰ S. Hrg. 107–677: *Examining the Nuclear Posture Review*, 4.

²⁰¹ Andrei Kokoshin, “A Nuclear Response to Nuclear Terror: Reflections of Nuclear Preemption,” *Annals of the American Academy of Political and Social Science* 607 (September 2006): 62.

²⁰² James Doyle, “Strategy for a New Nuclear Age,” *Nonproliferation Review* 13, no. 1 (2006): 96, 103, and 105. The Thirteen Practical Steps for disarmament and nonproliferation were developed during the 1995 and 2000 NPT Review Conferences and agreed to at the 2000 NPT Review Conference but the United States afterward withdrew support for all steps. There were disagreements over the legally binding character of certain measures involved in the thirteen steps.

In 2009, the tactical challenges of employing nuclear weapons against terrorist groups were examined by the Combating Terrorism Center (CTC) at the request of the Secretary of Defense Task Force on DOD Nuclear Weapons Management. The CTC researchers observed that the enhanced nuclear posture would increase the costs associated with organization or mission failures. For example, the CTC researchers argued that forward deploying nuclear weapons in theater would risk their inadvertent transfer to terrorists, and U.S. leaders would risk “reputational damage” if airplanes carrying nuclear weapons were shot down or crashed in a population center.²⁰³ Such observations were not original or particularly useful since these risks had been well known since the 1950s. The 2001 NPR addressed the deterrence of terrorists but did not clearly associate nuclear capabilities with that deterrence objective: “Terrorists or rogue states armed with weapons of mass destruction will likely test America’s security commitments to its allies and friends. In response, we will need a range of capabilities to assure friend and foe alike of U.S. resolve.”²⁰⁴ Debates were sparked by the 2001 NPR’s reference to new requirements: “Desired capabilities for nuclear weapons systems in flexible, adaptable strike plans include options for variable and reduced yields, high accuracy, and timely employment. These capabilities would help deter enemy use of WMD or limit collateral damage, should the United States have to defeat enemy WMD capabilities.”²⁰⁵

Public debates regarding the 2001 NPR and the utility of nuclear weapons in national security included the concerns of some commentators about proliferation and potentially overvaluing the utility of nuclear weapons. The 2001 NPR built on aspects of the 1994, NPR including a desire to rely less on the deployed and non-deployed nuclear arsenal. Bush administration officials aimed to rely more, over time, on a “responsive nuclear weapons design” and production infrastructure in order “to manage risk” and rely

²⁰³ Scott Helfstein, Michael J. Meese, Don Rassler, Reid Sawyer, Troy Schnack, Mathew Sheiffer, Scott Silverstone, and Scott Taylor, “White Paper Prepared for the Secretary of Defense Task Force on DOD Nuclear Weapons Management: Tradeoffs and Paradoxes: Terrorism, Deterrence and Nuclear Weapons,” *Studies in Conflict and Terrorism* 32, no. 9 (2009): 793.

²⁰⁴ *Nuclear Posture Review [Excerpts]*, 2.

²⁰⁵ *Ibid.*, 15.

less on non-deployed warheads.²⁰⁶ But some commentators, including Rose Gottemoeller, concluded that the 2001 NPR “places too much emphasis on the utility of nuclear weapons in U.S. military doctrine and strategy. That, in my view, is the most negative aspect of the review, and it in fact reveals the underlying meaning of the hedge strategy: nuclear weapons are important for a whole host of reasons, and we have to keep them around on that account.”²⁰⁷ In contrast, Thomas Scheber concluded that deterrence and related strategic stability were no longer achievable using Cold War thinking, and that the emerging portfolio of strategic capabilities advocated by the 2001 NPR would more effectively assure allies, deter the “most severe threats,” and meet extended deterrence commitments.²⁰⁸

In 2008, Joseph Cirincione claimed that the 2001 NPR had failed to stem growing proliferation problems inherited by the Bush administration, and asserted that the world suffered “greater nuclear insecurity than during the 1990s” because there were more states pursuing nuclear weapons capabilities.²⁰⁹

Secretary Rumsfeld and others who took part in the 2001 NPR held that they were reducing U.S. reliance on nuclear weapons. However, according to Grotto and Cirincione, other countries, including Russia, concluded the “precise opposite” from the leaked portions of the 2001 NPR.²¹⁰ Grotto’s and Cirincione’s interpretation of Russia’s declared position seemed to overlook the possibility that it might have been designed to achieve certain political effects, such as weakening the credibility and stature of the George W. Bush administration. Joseph Cirincione testified that the 2001 NPR would seriously hamper U.S. nonproliferation goals because it would signal rejection of good-

²⁰⁶ *National Security and Nuclear Weapons in the 21st Century*, i.

²⁰⁷ Kimball et al., “Parsing the Nuclear Posture Review,” 17.

²⁰⁸ Thomas Scheber, “Strategic Stability: Time for a Reality Check,” *International Journal* 63, no. 4 (2008): 914.

²⁰⁹ Joseph Cirincione, “Prospects for Change in U.S. Nuclear Policy,” in *Nuclear Doctrines and Strategies*, eds., M. Fitzpatrick, A. Nikitin, and S. Oznobishchev (Amsterdam, Netherlands: IOS Press, 2008), 31.

²¹⁰ Grotto and Cirincione wrote: “Senior participants in the 2001 NPR genuinely believed they reduced the role of nuclear weapons in U.S. national security strategy.” Grotto and Cirincione, *Orienting the 2009 Nuclear Posture Review*, 26.

faith negotiations, prompting other states to reexamine their nonproliferation treaty commitments.²¹¹ As Grotto's and Cirincione's remarks suggest, there were sharply divergent views about how the 2001 NPR recommendations influenced perceptions about the utility of nuclear weapons in national security. Despite the 2001 NPR's call for a decreased reliance on nuclear weapons, the debates included warnings that an increased emphasis on the utility of nuclear weapons would weaken America's ability to pursue other national policy goals.

The 2001 NPR prompted important public debates over what some commentators saw as the mixing of conventional and nuclear roles, which touched on the issues of new nuclear weapons and changes in the likelihood of nuclear use. Cirincione argued that increased integration of conventional and nuclear force planning, including linking intelligence, communication and operational planning for nuclear and conventional operations, would allow conventional forces to more easily conduct operations previously limited to nuclear systems, making the use of nuclear weapons less likely, but that the reverse was also possible, making it easier to target and use nuclear weapons in missions previously reserved for conventional forces.²¹² Payne pointed out that the "integration of nuclear and non-nuclear threat options" was not the same as giving what were previously conventional force missions to nuclear forces.²¹³

For some commentators the 2001 NPR recognized a need for more deterrent options and recommended posture and force structure changes that undermined its own prospects. Ellen O. Tauscher held that the New Triad, which was designed to reduce U.S. reliance on nuclear weapons, undercut that goal by endorsing new nuclear weapons types and confused debates by seemingly advocating a form of preemption.²¹⁴ She concluded: "The Bush Administration has opposed arms control treaties, rejected the Comprehensive Test Ban Treaty (CTBT) and negotiated an open-ended Moscow Treaty which allows for reductions in deployed nuclear weapons, but it does not achieve those with any

²¹¹ S. Hrg. 107-677: *Examining the Nuclear Posture Review*, 45.

²¹² *Ibid.*, 52.

²¹³ Payne, "Deterrence for a New Age," 416.

²¹⁴ H.A.S.C. No. 110-73: *U.S. Nuclear Weapons Policy*, 2.

significant reductions.”²¹⁵ During the Senate Foreign Relations Committee review of the 2001 NPR, Senator Joseph R. Biden expressed concern that the review’s recommendations seemed to signal an openness to new nuclear testing which might “unravel” the NPT regime. In his view, the pursuit of certain types of “new weapons” could increase the likelihood of nuclear war.²¹⁶

The “real paradox inherent in the NPR,” James A. Russell and James J. Wirtz concluded, was that it fundamentally reflected the nuclear non-use norm; the 2001 NPR represented the Bush administration’s search for options to deter and defeat WMD-armed adversaries using force levels far short of all-out nuclear attack.²¹⁷ Commentators disagreed about how the probability of nuclear use might change given fulfillment of the Bush administration’s policy recommendations.

2. Alert Levels, Force Reductions, and the New Triad

Public debates about the force levels associated with the 2001 NPR included questions about whether dissuasion would work and arguments about what changes should be made to the status of force alerts. Keith Payne judged that force structure and force levels should be the product of a number of factors, including the volatility of the threat environment; the correlation between nuclear arsenals and other national policy goals, like nonproliferation; the goals that nuclear arsenals are meant “to serve and their priorities, including assurance and deterrence”; the impact of nonmilitary and non-nuclear means on achievement of those goals; and “budget and technical realities.”²¹⁸ As analysts considered the transition from Cold War to post-Cold War nuclear defense planning, there were questions about whether potential adversaries could be deterred with nuclear weapons. For Mackubin Owens, the 2001 NPR tried to address the threat with low-yield nuclear weapons capable of deep-earth penetration, based on an assumption that existing nuclear weapons were “too powerful” for use against adversaries armed with

²¹⁵ Ibid.

²¹⁶ S. Hrg. 107-677: *Examining the Nuclear Posture Review*, 1-2.

²¹⁷ James A. Russell and James J. Wirtz, “United States Nuclear Strategy in the Twenty-first Century,” *Contemporary Security Policy* 25, no. 1 (2004): 106.

²¹⁸ Payne, “Setting the Record Straight,” 64.

WMD.²¹⁹ In fact, the 2001 NPR prescribed the pursuit of an array of nuclear and non-nuclear capabilities to counter such threats.

Alert levels were an issue for some nuclear policy experts in congressional hearings. Sidney Drell, in discussing an agenda for START follow-on negotiations, recommended that deployed nuclear forces be taken off “prompt launch procedures” to reduce the possibility of nuclear use based on faulty threat information, accident, or “unauthorized action.”²²⁰ The purpose would be to expand response time and reduce the number of operationally deployed nuclear weapon systems set to launch promptly, and this could be achieved by various means, including separating warheads from strategic delivery systems, or shifting to a reliance on long-range bombers instead of nuclear-armed ballistic missiles.²²¹ Richard Sokolsky and Elaine Bunn questioned if unilaterally reducing the alert levels of U.S. nuclear weapons would increase stability, considering that in a crisis situation, re-alerting forces could be destabilizing and strengthen incentives for escalation.²²² Public debates included alert levels and their connection to strategic stability, but in some ways the force numbers debate was overshadowed by other issues, including research and development on new offensive and defensive capabilities, nuclear and non-nuclear.

The 2001 NPR public debates regarding force composition and force level changes focused on force cuts. Payne observed that the 2001 NPR was based on a broader set of defense policy goals than was Cold War-era deterrence, and the increase in the number of goals explained the high numbers of proposed weapons, compared to projected force levels under 1990s planning assumptions and arms control agreements.²²³ Steven Weinberg, a 1979 Nobel Prize winner in Physics, in official testimony submitted

²¹⁹ Mackubin Thomas Owens, “A Balanced Force Structure to Achieve a Liberal World Order,” *Orbis* 50, no. 2 (2006): 321.

²²⁰ *H.A.S.C. No. 110–73: U.S. Nuclear Weapons Policy*, 73–74.

²²¹ *Ibid.*

²²² M. E. Bunn and Richard D. Sokolsky, “The U.S. Strategic Posture Review: Issues for the New Administration,” *Strategic Forum*, no. 177 (2001): 4.

²²³ Payne, “Setting the Record Straight,” 148.

to the Senate Committee on Foreign Relations, declared bluntly that planning for the use of nuclear weapons would frustrate attempts to reduce actual warhead numbers.²²⁴

Ivo Daalder and James Lindsay asserted that the Bush administration cuts were not substantial enough and were not indicative of new strategic thinking suggested in official pronouncements; they claimed that the Bush administration's plans for force reductions were consistent with Cold War thinking.²²⁵ Despite such claims by critics, there were plans to dramatically reduce force levels following the 2001 NPR. According to David Yost, the goal of 1,700–2,200 operationally deployed strategic nuclear warheads by 2012 represented close to a two-thirds drop; plans were made for real and significant stockpile cuts, including the May 2004 approval by President Bush of a 50 percent force cut from 2001 levels by 2012; and there were sizable ICBM reductions and reductions in the number of B-52 bomber-delivered advanced cruise missiles.²²⁶ The Bush administration force cut proposals were controversial, but the cuts were real.

The New Triad of the 2001 NPR figured prominently in public debates. Keir Lieber and Daryl Press asserted in a 2006 *Foreign Affairs* article that the United States was achieving what they called “nuclear primacy.” For Lieber and Press, nuclear hawks welcomed U.S. nuclear primacy, nuclear doves worried that the United States might see more opportunities for coercion of other states, and nuclear owls were concerned that U.S. nuclear primacy might be destabilizing regardless of particular U.S. decisions and actions.²²⁷ According to a United States Army War College study, the most important and controversial element of the 2001 NPR New Triad was the mixing of non-nuclear strike weapons with existing nuclear offensive weapons capabilities, but the New Triad

²²⁴ S. Hrg. 107–677: *Examining the Nuclear Posture Review*, 35.

²²⁵ Ivo Daalder and James Lindsay, “A New Agenda for Nuclear Weapons,” *Policy Brief*, no. 94 (Washington, DC, Brookings Institute, 2002), 6.

²²⁶ David S. Yost, “Analysing International Nuclear Order,” *International Affairs* 83, no. 3 (2007): 569.

²²⁷ Keir A. Lieber and Daryl G. Press, “The Rise of U.S. Nuclear Primacy,” *Foreign Affairs* 85, no. 2 (2006): 53.

also envisioned the integration of missile defenses (and other forms of defense), and the promotion of a “responsive” nuclear weapons infrastructure.²²⁸

Robert Pape also argued that aspects of the New Triad could be destabilizing. He wrote that it was seriously considered by some of the major powers that the U.S. development of sophisticated radars and advanced command and control systems designed to counter a small attack by a rogue state could be easily transformed into the ability to counter a large attack by a major power—meaning unequivocal U.S. nuclear superiority.²²⁹ Controversy over the 2001 NPR’s force structure recommendations focused on the New Triad.

3. Deterrence Confidence, New Concepts, and Arms Control

There were public debates about the 2001 NPR’s theory of deterrence related to deterrence confidence and reliability. Payne seemed to suggest that the 2001 NPR recommendations flowed from concerns about deterrence reliability and the credibility of Cold War-related force structure for certain deterrence contingencies or, to use his words, “for some contemporary deterrence purposes.”²³⁰ A 2008 Secretary of Defense Task Force report stated that the 2001 NPR had “reasserted the critical role nuclear weapons continue to play in the defense capabilities of the United States, its allies, and friends by deterring attack and dissuading potential adversaries from undertaking hostile actions.”²³¹

The New Triad was an element of the overall U.S. policy of tailored deterrence. For Robert K. Uemura, the Bush administration’s focus on tailored deterrence expressed “the same logic” as Cold War deterrence, except that it aimed to expand the “deterrent audience” to include near-peer military competitors, regional WMD states, and non-state

²²⁸ Owens, *The Promise and Peril*, 7.

²²⁹ Robert A. Pape, “Soft Balancing Against the United States,” *International Security* 30, no. 1 (2005): 34.

²³⁰ Payne, “On Nuclear Deterrence and Assurance,” 74.

²³¹ Secretary of Defense Task Force on DOD Nuclear Weapons Management, *Report of the Secretary of Defense Task Force on DOD Nuclear Weapons Management, Phase II: Review of the DOD Nuclear Mission* (Washington, DC: Department of Defense, 2008), 5.

terrorist networks, and the focus was less on “deterrent relationships” than on acquiring offensive capabilities to attack and destroy the valued targets of U.S. adversaries “since a relationship presumes both sides recognize the consequences of acting.”²³² Uemura observed that addressing future threats may require more than just deterrence, and deterrence might require more than just nuclear threats.²³³

Michael Levi, a physicist and policy fellow at the Brookings Institution in 2004, argued that deterrence might become an especially valuable tool in the war on terror because a successful deterrent strategy relies on making retaliatory action appear certain and provides as little room as possible for the adversary to gamble that it might survive transferring nuclear weapons to another group.²³⁴ Edwin T. Parks, in a 2002 National War College study, asserted that the 2001 NPR reflected the same Cold War posture and strategy for deterring major state actors, such as Russia and China, shrank force structure but retained counterforce employment policy, and failed to articulate the kinds of weapons and policies needed to support the stated aim of preemptively neutralizing a hostile WMD attack or program. In other words, Parks held that the 2001 NPR undermined its own strategy by not clearly establishing promised threat responses.²³⁵ What Bush administration officials and other 2001 NPR proponents called strengthening the credibility of the U.S. deterrence posture, critics called dangerously lowering the nuclear threshold.

Public debates over the 2001 NPR’s theory of deterrence revolved around new deterrence concepts. Delpech wrote that contemporary U.S. policy makers appreciated the influence of regional security dynamics and reflected an understanding of who needed to be deterred. She added that while some theorists in an earlier era conceived of opponents as abstract game theory actors, current policy makers understood the need to

²³² Robert K. Uemura, *Formula for Deterrence: The Challenges of Deterring Contemporary Threats to United States National Interests* (Maxwell Air Force Base, AL: Air War College, 2008), 31.

²³³ Ibid.

²³⁴ Michael A. Levi, “Deterring Nuclear Terrorism,” *Issues in Science and Technology* 20, no. 3 (2004): 70.

²³⁵ Edwin T. Parks, *Nuclear Strategy in the New World Order* (Washington, DC: National War College, 2002), 8.

fully understand regional issues and to assess potential opponents in order to make effective policy. Delpech wrote that “Kahn showed little interest in game theory.”²³⁶

The idea of “new” deterrence approaches, even if not strictly speaking new, was related to the realization that not all deterrence is stable. The post-9/11 period saw the preparation of numerous wide-ranging studies of deterrence policies and strategies aimed at preventing terrorist use of nuclear weapons against the United States and U.S. allies and interests. Paul Telleen focused on Al Qaeda in his 2008 American University dissertation. Al Qaeda’s idiosyncratic rationality, non-state makeup, and deep motivation made it appear invulnerable to deterrence concepts relying on threats of punishment. Telleen concluded, however, that deterrence actually applies partially to Al Qaeda, notably in reference to deterrence by denial. In other words, deterrence against such a non-state entity might be only partially successful and for only a limited period.²³⁷

Given the ongoing proliferation of nuclear weapons technology, Elbridge Colby urged that it was unrealistic to launch a “quixotic” campaign for the complete eradication of nuclear weapons. In his view, deterrence policy offers a “way forward” as a workable approach because of its continuing effectiveness when properly tailored. For Colby, deterrence had not slipped into permanent irrelevance, but remained the best possible strategy, if tailored and backed by real capabilities and will.²³⁸ Regarding the 2001 NPR recommendations and the New Triad, nuclear weapons have unique characteristics that allow them to effectively support flexible deterrence strategy. For Sherry Stearns-Boles, a new deterrence doctrine was applicable to varied threats based on tailored approaches—tailored to specific adversaries and their cultural characteristics. Tailored deterrence was the new deterrence approach required for the post-9/11 world made up of multiple adversaries and varied threat scenarios.²³⁹ Tailored deterrence found new salience following the terrorist attacks of 9/11. Whether the 2001 NPR supported or undermined

²³⁶ Delpech, *Nuclear Deterrence in the 21st Century*, 49.

²³⁷ See Paul C. Telleen, “Deterrence and Nuclear Terrorism” (PhD diss., American University, 2008).

²³⁸ Elbridge Colby, “Restoring Deterrence,” *Orbis* 51, no. 3 (2007): 414, 424–425, and 427.

²³⁹ Sherry L. Stearns-Boles, *The Future Role and Need for Nuclear Weapons in the 21st Century* (U.S. Air Force Academy, CO: Institute for National Security Studies, 2007), 27, 35, and 51.

U.S. compliance with NPT obligations was contested. Criticism of U.S. nuclear policy under the Bush administration as supposedly lacking in respect for the U.S. commitment to the NPT was widespread in the disarmament community.

The 2001 NPR public debates over the appropriate theory of deterrence included the controversial topic of Bush administration arms control policy. Mark Bromley argued in 2002 that the 2001 NPR would undermine the NPT by spurning irreversible arms reductions, proposing new nuclear weapons, and targeting non-nuclear weapon states, and that the United States was “turning its back” on binding arms control agreements.²⁴⁰ The 2001 National Institute for Public Policy report entitled *Rationale and Requirements for U.S. Nuclear Forces and Arms Control* seemed to present the Bush administration position on moving away from certain binding arms control agreements, linked new deterrence concepts with a new approach to arms control, and declared that “strategy for the future should focus on close consultation, coordination, and transparency.”²⁴¹

C. Dale Walton and Colin S. Gray pointed out that strategic nuclear force level parity between the United States and Russia, the concept underlying the START I and START II arms control agreements, survived the Cold War. Some officials in the Bush administration intended to break the Cold War pattern, but were not successful with the 2002 Strategic Offensive Reductions Treaty (SORT, also called the Moscow Treaty).²⁴²

Regarding proliferation and nonproliferation, Robert Kerrey and William Hartung argued that the Bush administration should seriously consider whether the U.S. nuclear posture should include what they regarded as a costly and still unproven missile defense program that could potentially upset U.S.–Russian arms reduction negotiations and spur China to expand its nuclear forces.²⁴³

²⁴⁰ Mark Bromley, “‘Planning to be Surprised’: The U.S. Nuclear Posture Review and Its Implications for Arms Control,” British American Security Information Council (BASIC) Papers 39, April 2002, 2, 7.

²⁴¹ Payne, *Rationale and Requirements for U.S. Nuclear Forces*, iii.

²⁴² C. Dale Walton and Colin S. Gray, “The Geopolitics of Strategic Stability: Looking Beyond Cold Warriors and Nuclear Weapons,” in *Strategic Stability: Contending Interpretations*, eds. Elbridge A. Colby and Michael S. Gerson (Carlisle, PA: U.S. Army War College, Strategic Studies Institute, 2013), 89.

²⁴³ Robert Kerrey and William D. Hartung, “Toward a New Nuclear Posture: Challenges for the Bush Administration,” *Arms Control Today* 31, no. 3 (2001): 6.

There were genuine concerns in some analytical quarters that the 2001 NPR recommendations would be destabilizing and wreck earlier arms control agreements that were seen as successful by some commentators. In retrospect, these concerns appear to have been misplaced and exaggerated. At least some of these concerns may have been due to (a) how the 2001 NPR recommendations became known to public debaters (incomplete reports on the secret document followed by selected leaks to print media) and (b) how the Bush administration chose to follow up on the 2001 NPR.

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IV. THE 2010 NUCLEAR POSTURE REVIEW

Amy Woolf, a nuclear weapons policy specialist, in a 2007 article on Congress and nuclear weapons policies and programs, outlined post-2001 NPR debates regarding nonproliferation. According to Woolf, after the 2001 NPR, Congress attempted to more effectively align nuclear weapons programs and nonproliferation goals but some experts argued that nuclear weapons programs would reinforce nonproliferation goals by providing deterrence capabilities, while others argued that they would weaken the pursuit of nonproliferation goals by enhancing the perceived utility of nuclear weapons and making it harder to “discourage” other states from pursuing them.²⁴⁴ In 2009, Tom Sauer argued that the United States was set to achieve nuclear primacy because of the deteriorating state of the Russian arsenal, U.S. nuclear weapons modernization, and U.S. missile defenses.²⁴⁵

The 2001 NPR attempted to move the U.S. nuclear posture away from Cold War models and planning assumptions. Its changes to deterrence conceptions were gradual. The U.S. nuclear posture in the 2000s was characterized by the implementation of the New Triad (including re-rationalization of nuclear warheads, SDVs, and nuclear complex modernization), the pursuit of BMD, and nuclear force reductions. The George W. Bush administration cut the U.S. nuclear stockpile nearly in half by 2007. The highly anticipated 2010 NPR followed the Bush administration’s somewhat more controversial 2001 NPR.

A. KEY DECISIONS

A June 2013 White House Fact Sheet revealed that President Obama had directed an interagency study of nuclear deterrence policy and requirements. The significance of the 2013 policy guidance was that it followed the 2010 NPR and ratification of the New START Treaty, and that it directed the Department of Defense, the Department of State,

²⁴⁴ Woolf, “Congress and U.S. Nuclear Weapons,” 510.

²⁴⁵ Tom Sauer, “A Second Nuclear Revolution: From Nuclear Primacy to Post-Existential Deterrence,” *Journal of Strategic Studies* 32, no. 5 (2009): 748.

the Department of Energy, and the broader intelligence community to carefully assess deterrence policy and requirements to ensure that the U.S. nuclear posture and plans would address the current security environment based on the idea that informed presidential guidance would “drive” nuclear employment policy, planning, posture decisions, and force structure.²⁴⁶

The 2010 NPR featured a new, less ambiguous negative security assurance (NSA). Gary Samore, then the White House Coordinator for Arms Control and Weapons of Mass Destruction, Proliferation, and Terrorism, explained in April 2010 that the 2010 NPR was meant to support President Obama’s “commitment to disarmament and nonproliferation,” to emphasize that extended deterrence was still important, and to exclude countries like North Korea and Iran, which threaten U.S. allies and partners, from the new, carefully formulated NSA.²⁴⁷ Obama administration officials emphasized that the revised NSA served to assure allies and that this served nonproliferation goals. The 2010 NPR was tied to the conclusion of the New START Treaty that limited—according to its counting rules—U.S. and Russian nuclear forces to levels much lower than those provided for in the 1991 START Treaty and the 2002 Moscow Treaty. As with the two previous NPRs, the authors of the 2010 NPR said that it would reduce the role of nuclear weapons in U.S. national security strategy, and maintain deterrence and strategic stability at lower force levels. Among the key decisions of the 2010 NPR, the report called for a major adjustment to the prioritization of ends (elevating the struggle against terrorism above more traditional deterrence goals), and reaffirmed the goals of reducing the roles of nuclear weapons and pursuing nuclear arms control and disarmament.

1. Role of Nuclear Weapons

The 2010 NPR changed the priority of threats and connected nuclear deterrent capabilities to other policies such as threat reduction, extended deterrence, and nonproliferation. According to the 2010 NPR report, “The threat of global nuclear war

²⁴⁶ Office of the Press Secretary, The White House, “Fact Sheet: Nuclear Weapons Employment Strategy of the United States,” June 19, 2013.

²⁴⁷ Gary Samore, remarks at “International Perspectives on the Nuclear Posture Review,” Carnegie Endowment for International Peace, Washington, DC, April 22, 2010.

has become remote, but the risk of nuclear attack has increased.”²⁴⁸ The statement by Andrew Weber, then the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs, before the Senate Armed Services Committee, in a hearing on nuclear forces and policies, concluded that despite the changed nature of post–Cold War nuclear threats and the need to manage the nuclear terrorist threat, the United States needed to continue fielding strategic deterrent capabilities and maintain an “agile and responsive” nuclear weapons infrastructure, as well as continue threat reduction and nonproliferation activities.²⁴⁹

In the same Senate Armed Services Committee hearing, on April 17, 2013, Major General Garrett Harencak, Assistant Chief of Staff, Strategic Deterrence and Nuclear Integration, testified that contemporary deterrence was not one-size-fits-all. He argued that to effectively deter near-peer and other nuclear-armed states would require “new thinking and tailored application,” and that the “non-peer case may be the most challenging, and will require a renewed understanding of what motivates these actors as well as critical thinking on how best to address the threats they pose.”²⁵⁰ The 2010 NPR report specified that nuclear terrorism was the “most immediate and extreme threat” and that nuclear proliferation was “pressing” and demanded immediate action, given the prospect of certain states acquiring nuclear weapons which oppose the United States, its allies and partners, and the “broader international community.”²⁵¹ Senator Jeff Sessions, in the April 17, 2013 Hearing to Receive Testimony on Nuclear Forces and Policies, expressed concern that allies may question U.S. commitments to use nuclear weapons in their defense, and stated that neglect of nuclear modernization is something allies observe with concern.²⁵² President Obama’s statement on release of the NPR report signaled that

²⁴⁸ U.S. Department of Defense, *Nuclear Posture Review Report* (Washington, DC: Office of the Secretary of Defense, 2010), 3.

²⁴⁹ *Hearing to Receive Testimony on Nuclear Forces and Policies in Review of the Defense Authorization Request for Fiscal Year 2014 and the Future Years Defense Program*, Hearing Before the United States Senate Committee on Armed Services, Subcommittee on Strategic Forces, 113th Cong., 1st sess., 2013, 23.

²⁵⁰ *Ibid.*, 36.

²⁵¹ *2010 Nuclear Posture Review Report*, 3.

²⁵² *Hearing to Receive Testimony on Nuclear Forces and Policies in Review of the Defense Authorization Request for Fiscal Year 2014*, 3.

preventing nuclear proliferation and nuclear terrorism had moved to “the top” of the U.S. nuclear agenda, and that this decision attested to the importance of the NPT to United States interests.²⁵³ The 2010 NPR focused on the increased risk of nuclear attack but in the context of terrorism, not large-scale, inter-state conflict. The threat of nuclear attack in the traditional inter-state context did not figure prominently in the 2010 NPR.

Key decisions of the 2010 NPR reaffirmed the fundamental purpose of nuclear weapons in national security and proclaimed a smaller role. The 2010 NPR report restated U.S. reliance on nuclear weapons. Deployed and stockpiled weapons, SDVs, command and control capabilities, and infrastructure were deemed “essential” to deterrence and contributed to assurance of allies and partners and to promoting stability.²⁵⁴ The 2010 NPR report specified a reduced role for deterring non-nuclear attacks and referred to increasing reliance on non-nuclear deterrence. The primary rationale for nuclear weapons was explained in the Secretary of Defense’s 2012 report entitled *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense* as the ability to inflict “unacceptable damage” against an adversary. To the extent that deterrence objectives could be met with smaller forces, however, the United States would consider reducing its reliance on nuclear weapons in national security.²⁵⁵

President Obama specified five objectives of the 2010 NPR, which were outlined in the report: prevent nuclear terrorism and nuclear proliferation; reduce the role of U.S. nuclear weapons in U.S. national security; maintain strategic deterrence and stability at reduced nuclear force levels; strengthen regional deterrence and reassure U.S. allies; and sustain a safe, secure, and effective nuclear arsenal.²⁵⁶ The 2010 NPR report pointed to a reduced—or “more circumscribed”—role for nuclear weapons, given changed geopolitical realities since the end of the Cold War and progress on U.S.–Russian nuclear arms control, as evidenced by a 75 percent drop in the number of deployed strategic

²⁵³ Office of the White House Press Secretary, “Statement by President Barack Obama on the Release of Nuclear Posture Review,” April 6, 2010, 1.

²⁵⁴ *2010 Nuclear Posture Review Report*, 6.

²⁵⁵ U.S. Department of Defense, *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense* (Washington, DC: Secretary of Defense, 2012), 5.

²⁵⁶ *2010 Nuclear Posture Review Report*, iii.

weapons since the end of the Cold War, and a substantial reduction in the number of stockpiled weapons.²⁵⁷ The 2010 NPR report accepted a continuing fundamental deterrence role for nuclear weapons against potential adversaries and a role in assuring allies and partners, but also stated that the current Cold War force structure was outdated and “poorly suited” for countering current threats like terrorism and “unfriendly regimes” pursuing nuclear weapons.²⁵⁸ The 2010 NPR reiterated the fundamental purpose of nuclear weapons but reduced U.S. reliance on these weapons, as the cuts suggested.

In considering the role of nuclear weapons, the 2010 NPR made key decisions regarding negative security assurances (NSAs) and “sole purpose.” The 2010 NPR report indicated that the United States was prepared to reinforce its long-established NSA policy with an important declaration: “The United States will not use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the Nuclear Non-Proliferation Treaty (NPT) and in compliance with their nuclear non-proliferation obligations.”²⁵⁹ However, in the discussion of states not covered by the refined NSA, the U.S. government was not prepared to accept a “sole purpose” policy for nuclear weapons. Although the 2010 NPR NSA was characterized as a strengthening of existing policy, for states not subject to the NSA, including other nuclear-armed states, the U.S. government might consider nuclear weapons use in “a narrow range” of circumstances.²⁶⁰ The purpose of issuing the revised NSA was explicitly connected to assessments about increased conventional weapons capabilities, improved defenses (including missile defenses), and a corresponding reduction in the counter-WMD role for nuclear weapons.²⁶¹

In public statements, President Obama emphasized that the U.S. government’s declaration of an NSA included the important qualification about a potential target state

²⁵⁷ Ibid., 45.

²⁵⁸ Ibid., v.

²⁵⁹ Ibid., 15.

²⁶⁰ Ibid., 15, viii.

²⁶¹ Ibid., 16, 15.

being in compliance with nuclear nonproliferation “obligations.”²⁶² The 2010 NSA included a qualification relating to special cases of potential destructiveness, and specified that the U.S. government reserved the right to adjust its policy on assurances.²⁶³ NPR policy direction was clarified in congressional testimony by Ellen Tauscher, then the Under Secretary of State for Arms Control and International Security, who stated that the NPR report strengthened “longstanding” policy, and explained that the U.S. government assessed its own “compliance judgments.”²⁶⁴ The 2010 NPR’s NSA and subsequent official clarifications with respect to states deemed to be demonstrably outside NPT compliance were meant to make it clear that states like Iran and North Korea did not fall under the revised NSA.²⁶⁵ The strengthened 2010 NSA was more accurately a clarified NSA meant to reduce ambiguity. As described in the 2010 NPR report, the role of nuclear weapons would be clearer (and less ambiguous) if NSAs were strengthened in U.S. declaratory policy.

2. Theory of Deterrence

Key strategic deterrence decisions in the 2010 NPR addressed strategic stability at lower force levels, proliferation, and arms control. The 2013 presidential guidance on nuclear employment strategy emphasized that forces were postured and planned to maintain strategic deterrence, “while still providing the capability to threaten credibly a wide range of nuclear responses if deterrence should fail.”²⁶⁶ Secretary Gates concluded about the 2010 NPR that it maintained stable deterrence while cutting approximately 50 percent from START I force levels.²⁶⁷ The 2010 NPR sought to improve strategic stability with Russia and China by underlining transparency and mutual confidence to

²⁶² “Statement by President Barack Obama on the Release of Nuclear Posture Review,” 1–2.

²⁶³ *2010 Nuclear Posture Review Report*, 16.

²⁶⁴ *S. Hrg. 111–824: Nuclear Posture Review*, Hearing Before the Committee on Armed Services, 111th Cong., 2nd sess., 2011, 61.

²⁶⁵ *Ibid.*, 37.

²⁶⁶ U.S. Department of Defense, *Report on Nuclear Employment Strategy of the United States* (Washington, DC: Department of Defense, 2013), 8.

²⁶⁷ *DOD News Briefing with Secretary Gates, Navy Admiral Mullen, Secretary Clinton, and Secretary Chu from the Pentagon*, April 6, 2010, 1.

help set conditions for addressing proliferation.²⁶⁸ The authors of the 2010 NPR described a continuing need to maintain strategic stability with nuclear-armed state powers, but acknowledged that maintaining strategic stability at lower force levels would present persistent challenges. The New START Treaty entered into force on February 5, 2011, and promoted a flexible nuclear deterrent with a broader framework for bilateral strategic weapons reductions. New START limited the United States and the Russian Federation to 1,550 accountable warheads on deployed SDVs, which were limited to 700 deployed ICBMs, deployed SLBMs, and deployed heavy bombers and 800 SDVs in total. According to the testimony of Madelyn R. Creedon, then the Assistant Secretary of Defense, Global Strategic Affairs, the “New START Treaty will result in the lowest number of deployed nuclear warheads since the 1950s,” when fully implemented.²⁶⁹ It should be noted that the George W. Bush administration made a similar statement about the 2002 Moscow Treaty, observing that the reduction in U.S. nuclear weapons would be “nearly 50 percent by 2012, which will result in the smallest stockpile since the Eisenhower administration.”²⁷⁰ New START represented the 2010 NPR’s focus on strategic deterrence (with Russia, not China).

The 2010 NPR discussed arms control in relation to strategic deterrence and strategic stability. Two former Secretaries of Defense, William Perry and James Schlesinger, responded in testimony that they did not favor postponing arms control negotiations until after the completion of the 2010 NPR. Perry and Schlesinger expected that New START and the NPR would be closely coordinated, and that the NPR results would be based partly on Russian willingness to improve the strategic relationship with respect to force levels.²⁷¹ Regarding strategic deterrence, the 2013 employment guidance stated: “The guidance narrows U.S. nuclear strategy to focus on only those objectives and

²⁶⁸ 2010 *Nuclear Posture Review Report*, 7.

²⁶⁹ *Hearing to Receive Testimony on Nuclear Forces and Policies in Review of the Defense Authorization Request for Fiscal Year 2014*, 8.

²⁷⁰ This quotation comes from a National Nuclear Security Administration press release of June 28, 2006. For a contemporary source, see Matthew L. Wald, “U.S. to make deep cuts in stockpile of A-arms,” *New York Times*, June 4, 2004.

²⁷¹ *S. Hrg. 111–218: The Report of the Congressional Commission on the Strategic Posture of the United States*, Committee on Armed Services, 111th Cong., 1st sess., 2010, 43.

missions that are necessary for deterrence in the 21st century. In so doing, the guidance takes further steps toward reducing the role of nuclear weapons in our security strategy.”²⁷² The implication was that there were new deterrence requirements as distinct from those of the twentieth century.

Regarding strategic stability, Rose Gottemoeller, then the Assistant Secretary of State, Bureau of Verification, Compliance, and Implementation, and Edward Warner, then the Secretary of Defense Representative to Post-START Negotiations, in a discussion about retaining the nuclear triad, maintained that strategic stability would be assured by a second-strike capability in line with national deterrence guidance.²⁷³ General Kevin Chilton, then the Commander, USSTRATCOM, considered deterrence stability at lower force levels in the same hearing in which Gottemoeller and Warner addressed the need for a second-strike capability. Chilton assessed that Russia would not be able to successfully cheat or break out of New START force limits because of the inherent survivability of the planned U.S. force structure, and the SSBNs in particular, and that additional Russian warheads would not nullify U.S. second-strike capabilities or deterrence stability.²⁷⁴ In his congressional remarks, John Kerry, then a U.S. Senator, described the reductions in deployed strategic warheads under New START as “a significant step forward” in the efforts to reduce nuclear weapon arsenals, and noted its “streamlined and effective new verification regime.”²⁷⁵ New START was seen as an important step on the path toward reducing U.S. reliance on nuclear weapons. Among its key decisions, the 2010 NPR laid the groundwork for the New START arms control agreement.

²⁷² Office of the Press Secretary, The White House, “Fact Sheet: Nuclear Weapons Employment Strategy of the United States,” June 19, 2013, <http://www.whitehouse.gov/the-press-office/2013/06/19/fact-sheet-nuclear-weapons-employment-strategy-united-states>. Appeared to be a new conception of deterrence requirements; important formulations of deterrence policy.

²⁷³ *S. Hrg. 111–897: The New START and the Implications for National Security*, Hearings Before the Committee on Armed Services, United States Senate, 111th Cong., 2nd sess., 2010, 406.

²⁷⁴ *Ibid.*, 253.

²⁷⁵ *S. Hrg. 111–738: The New START Treaty (Treaty Doc. 111–5)*, Hearings before the Committee on Foreign Relations, 111th Cong., 2nd sess., 2010, 1.

The key decisions of the 2010 NPR highlighted connections between assurance and nonproliferation, extended deterrence, and nonstrategic nuclear forces. The 2010 NPR emphasized that nuclear weapons were still relevant in addressing particular security circumstances and that the reassurance mission remained essentially unchanged. Despite some fundamentally different deterrence challenges, according to the 2010 NPR, the United States was faced with maintaining strategic deterrence with major nuclear weapon powers. The U.S. government would require fewer nuclear weapons, powerful conventional forces, and the military forces of close allies and partners to address the challenges of proliferation and nuclear terrorism.²⁷⁶ Assurance of allies and extended deterrence were presented in the 2010 NPR as important for deterring threats and supporting nonproliferation goals. The 2010 NPR report concluded that the global nonproliferation regime would be strengthened and that U.S. allies and partners could be protected without their own nuclear weapons. The United States would demonstrate to various states that they did not need nuclear weapons and that pursuit of them would only harm their political and military interests. At the same time, regional security architectures would continue to include U.S. nuclear means as long as there are nuclear threats to the United States and its allies and partners.²⁷⁷ Extended deterrence was a conspicuous feature of the 2010 NPR, and assurance of allies was covered in some detail. The anxiety of some U.S. allies about changes in the security environment, including nuclear and missile proliferation, prompted desires for reaffirmations of U.S. security assurances. The 2010 NPR report argued that assurance failure could spur proliferation, undermine the NPT, and increase the possibility of nuclear use.²⁷⁸ General Chilton testified in 2010 about the importance of retaining the capability to forward-deploy U.S. nuclear weapons on tactical fighter-bombers and heavy bombers, and the importance of proceeding with full-scope life extension for the B-61 bomb, and he referred to forward-deployed, nuclear-capable fighter aircraft as “enduring, visible manifestations of our Nation’s extended deterrence commitment to NATO, and a key component of a broader

²⁷⁶ 2010 *Nuclear Posture Review Report*, 45.

²⁷⁷ *Ibid.*, 31.

²⁷⁸ *Ibid.*, 4.

strategy to accomplish U.S. nonproliferation and deterrence goals.”²⁷⁹ While emphasizing extended deterrence, the 2010 NPR noted that U.S. non-strategic nuclear weapons had been significantly cut since 1989, and that the United States only maintained a small number of nuclear weapons deployed in Europe, “plus a small number of nuclear weapons stored in the United States, available for global deployment in support of extended deterrence to allies and partners.”²⁸⁰ In considering deterrence and strategic stability, the 2010 NPR attempted to maintain the assurance of allies at lower force levels.

3. Force Structure

The 2010 NPR’s key decisions regarding force structure considered force levels, extended deterrence, potential reductions below New START levels, and Russia. According to the 2010 NPR report, President Obama directed the review of options for force level reductions below those associated with New START. Planning for possible force level reductions would consider objectives, numbers, conditions, and timelines, while maintaining deterrence objectives. The review determined that the requirement for “strict numerical parity” between the United States and Russia was less pressing due to various geopolitical developments—including a mellowing of U.S.–Russian competition—and the high levels of U.S. conventional military capabilities, which afforded the United States leeway to adjust its nuclear force structure to address challenges while maintaining “traditional” deterrence and assurance goals.²⁸¹ According to the 2010 NPR, “Detailed NPR analysis of potential reductions in strategic weapons, conducted in spring 2009, concluded that the United States could sustain stable deterrence with significantly fewer deployed strategic nuclear warheads, assuming parallel Russian reductions.”²⁸² Regarding numerical parity with the Russian Federation, General C. Robert Kehler, Commander, USSTRATCOM, in 2011–2013, added that he believed future force cuts should involve “all nuclear weapons.” Considering the U.S.

²⁷⁹ *S. Hrg. 111–824: Nuclear Posture Review*, 55.

²⁸⁰ *2010 Nuclear Posture Review Report*, 27.

²⁸¹ *Ibid.*, 6, 29–30.

²⁸² *Ibid.*, 20.

and Russian force postures, Kehler identified no serious stability concerns in congressional testimony given in 2013.²⁸³ Tauscher said that New START sought strategic stability between the United States and Russia at lower force levels, but that the agreement was not tied to the development of nuclear weapons by other countries such as Iran or North Korea.²⁸⁴ In 2013 congressional testimony General James E. Cartwright, United States Marine Corps (Retired), and Ambassador Thomas R. Pickering argued that a far-reaching and fundamental reformulation of nuclear policy and “architecture” was needed to maintain a credible deterrent against traditional state-based nuclear aggression, while “preserving strategic stability and protecting the nation against nuclear proliferation, terrorism, cyber warfare, failed states, organized crime, regional conflict and other threats the 21st century has wrought.”²⁸⁵ Russia was discussed in the 2010 NPR report and subsequent testimony in relation to U.S. efforts to examine force cuts related to New START.

Key force structure decisions in the 2010 NPR report were shaped by the force level changes associated with New START, but the administration considered enduring extended deterrence requirements. New START was characterized in the 2010 NPR report as an interim step in a longer process of bilateral nuclear arms reductions. New START was based on “conservative assumptions” to arrive at reasonable cuts in strategic nuclear forces.²⁸⁶ On the issue of going to zero, Miller stated—echoing language in the 2010 NPR report—that the United States intended to examine future strategic- and non-strategic nuclear arms cuts in conjunction with reviews of related changes in Russian

²⁸³ H.A.S.C. No. 113–14: *Hearing on National Defense Authorization Act for Fiscal Year 2014 and Oversight of Previously Authorized Programs Before the Committee on Armed Services*, 113th Cong., 1st sess., 2013, 124.

²⁸⁴ S. Hrg. 111–824: *Nuclear Posture Review*, 53.

²⁸⁵ S. Hrg. 112–813: *Examining the Proper Size of the Nuclear Weapons Stockpile to Maintain a Credible U.S. Deterrent*, Hearing Before a Subcommittee of the Committee on Appropriations, 112th Cong., 2nd sess., 2013, 13.

²⁸⁶ 2010 *Nuclear Posture Review Report*, 20. “Stable deterrence can be maintained while reducing accountable U.S. strategic delivery vehicles by approximately 50 percent from the START level and reducing accountable strategic warheads by approximately 30 percent from the 2002 Moscow Treaty level.” *Ibid.*, 25.

force structure, consistent with stability, deterrence, and assurance goals.²⁸⁷ Concerning the ability of the United States to maintain continuous at-sea, SSBN-based deterrent capability in the Atlantic and Pacific Oceans, with SSBN surge capability in a crisis, the Department of Defense planned to extend the service life of Ohio-class SSBNs by a decade and launch an Ohio-class replacement that left “no gap in the U.S. sea-based strategic deterrent capability.”²⁸⁸ U.S. New START planning included important elements with respect to future force structure. Administration officials argued that “The inclusion in the New START treaty of the definitions of ‘deployed’ and ‘nondeployed’ ICBMs and SLBMs as well as provisions for excluding conventional-only B-1B bombers and U.S. SSGN submarines from accountability against treaty limits, the converting of individual SLBM launch tubes on U.S. SSBNs, and the converting of a subset of the B-52H fleet to a conventional-only capability, all contribute to the U.S. ability to sustain a robust nuclear triad under the New START treaty’s central limits.”²⁸⁹ The 2010 NPR report called for prudent reductions in strategic nuclear forces while preserving critical advanced conventional capabilities.

The 2010 NPR report fairly explicitly laid out associated analysis about the role of the nuclear triad in the force structure. The 2010 NPR report revealed four underlying requirements for the nuclear triad: retain second-strike capability; retain sufficient strength in each triad leg to allow for maintenance of strategic deterrence given the failure of one leg due to “technological problems or operational vulnerabilities”; retain excess numbers to allow for non-nuclear global strike capabilities (e.g., conventionally-armed ICBMs or SLBMs); and retain “needed” resources and capabilities in the nuclear complex over the long-term (i.e., at least several decades).²⁹⁰

²⁸⁷ *H.A.S.C. 112–12: Status of the United States Strategic Forces*, Subcommittee on Strategic Forces of the Committee on Armed Services, 112th Cong., 1st sess., 2011, 124.

²⁸⁸ U.S. Department of Defense, “November 2010 Update to the National Defense Authorization Act of FY2010: Section 1251 Report—New START Treaty Framework and Nuclear Force Structure Plans,” Washington, DC, November 17, 2010, http://www.lasg.org/CMRR/Sect1251_update_17Nov2010.pdf.

²⁸⁹ *S. Hrg. 111–897: The New START and the Implications for National Security*, 406.

²⁹⁰ *2010 Nuclear Posture Review Report*, 20–21.

General Kehler testified that USSTRATCOM did not concur with the recommendation to reduce Ohio-class missile tubes from 20 to 16 considering the contemporary security environment. “If the strategic environment deteriorated today,” Kehler argued, “our only option to increase the number of deployed SLBM weapons is to upload weapons, which is limited by the number of tubes/SSBN.”²⁹¹ Kehler observed that the “future strategic environment, policy, and capabilities of the Triad will ultimately determine how many ORP [Ohio Replacement Program] SSBNs, new bombers, and new ICBMs are required.”²⁹²

According to Obama administration statements, the force structure assumptions of the 2010 NPR formed the going-in guidance for the New START negotiations, and those force limits were agreed to by the “entire” interagency.²⁹³ The 2010 NPR arrived at the key decision to sustain the strategic triad, and this in turn supported the Department of Defense decision to recapitalize the sea-based strategic deterrent and proceed with the Naval Reactors program, which would “continue reactor plant design and development efforts begun in 2010 for procurement of long-lead reactor plant components in 2017, in support of Navy procurement of the first Ohio-class submarine replacement in 2019.”²⁹⁴

The 2010 NPR endorsed analyses of new and updated triad capabilities including a follow-on ICBM to the Minuteman III and future long-range bomber capabilities.²⁹⁵ Senator Carl Levin said that the 2010 NPR would reduce the role of nuclear weapons in national security policy and change the way policy makers viewed nuclear weapons, while shoring up U.S. nonproliferation goals and expanding the U.S. conception of deterrence.²⁹⁶ The 2010 NPR report recommended that, given the proposed force reductions under New START, the United States retain the nuclear triad—ICBMs,

²⁹¹ *H.A.S.C. 112–12: Status of the United States Strategic Forces*, 122.

²⁹² *Ibid.*

²⁹³ *S. Hrg. 111–824: Nuclear Posture Review*, 32.

²⁹⁴ *Ibid.*, 22.

²⁹⁵ *Ibid.*, 11.

²⁹⁶ *Ibid.*, 2.

SLBMs, and strategic bombers—but in smaller numbers.²⁹⁷ To allow for the contribution of non-nuclear systems on the achievement of regional deterrence and assurance goals, the 2010 NPR specified that New START would not cover missile defenses and would not “preclude” the use of “heavy bombers” and long-range missile systems in conventional roles.²⁹⁸ Although the 2010 NPR referred to “avoiding limitations on missile defenses in New START,” there was an exception to this principle. The U.S. Senate’s resolution for ratification for New START pointed out that paragraph 3 of Article V of the New START Treaty prohibited the use of ICBM and SLBM launchers “for placement of missile defense interceptors therein.”²⁹⁹ Key decisions of the 2010 NPR preserved the force structure flexibility which underlies the concept of the nuclear triad.

B. PUBLIC DEBATES

The official claims made for the significance of the 2010 NPR were numerous: reducing the role of nuclear weapons; extending a less ambiguous negative security assurance; modernizing the nuclear weapons complex to maintain a safe, secure, and effective nuclear deterrent; pursuing the goal of a nuclear weapons-free world; and laying the groundwork for a historic arms control agreement (New START) with Russia—including dramatic force reductions and a “comprehensive” monitoring framework.³⁰⁰ Public debates about the 2010 NPR revolved around the force reductions implied by the pursuit of nuclear disarmament, the elevation of terrorism as a nuclear threat, and the new NSA. The 2010 NPR promised to be significant with its links (however tangential) to the “global zero” movement, New START, and a revised NSA.

²⁹⁷ 2010 *Nuclear Posture Review Report*, 21.

²⁹⁸ *Ibid.*, 25.

²⁹⁹ Resolution of Ratification for the Treaty with Russia on Measures for Further Reduction and Limitation of Strategic Offensive Arms, December 22, 2010, <http://thomas.loc.gov/cgi-bin/ntquery/z?trty:111TD00005>.

³⁰⁰ Barack Obama, *National Security Strategy* (Washington, DC: The White House, 2010), 23.

1. Force Levels, Nuclear Triad, and Modernization

Public debates about the force structure and force level recommendations in the 2010 NPR revolved around force modernization and the force levels required for strategic deterrence. Hans Kristensen and Robert Norris concluded that the Obama administration had a valuable opportunity to update nuclear policy, break with past policy ideas, facilitate future nuclear force reductions, reduce the role of nuclear weapons in U.S. policy and strategy, and improve international security. Kristensen and Norris argued that New START force levels were still too high, even given the requirement to deter Russian nuclear attack or nuclear attack from any other nuclear-armed challenger.³⁰¹ In contrast, John P. Caves argued that a policy focus on steady force reductions to zero risked extending the neglect of nuclear force modernization.³⁰²

According to the 2012 *Global Zero U.S. Nuclear Policy Commission Report*, which was made part of House Armed Services Committee testimony, obsolete Cold War conceptions of threats and left over Cold War strategy sustained unnecessarily high force levels—more than were required for contemporary deterrence requirements—and which were at best marginally useful for confronting threats like nuclear proliferation, terrorism, and cyberspace warfare.³⁰³ In making the point that minimum deterrence is not “fixed and absolute,” Nick Ritchie and Paul Ingram argued that international dialogue leading up to the 2010 NPT Review Conference revealed that a number of non-nuclear-weapon states were anxious to see “qualitative shifts” in nuclear weapon postures and smaller roles for nuclear weapons in the doctrines of nuclear-weapon states (rather than more quantitative reductions), based on the idea that reduced reliance would mean reduced chance of use and easier progress toward disarmament.³⁰⁴

³⁰¹ Kristensen and Norris, “Reviewing Nuclear Guidance,” 18–19.

³⁰² John P. Caves Jr., “Avoiding a Crisis of Confidence in the U.S. Nuclear Deterrent,” *Strategic Forum*, no. 252 (January 2010): 4.

³⁰³ *Nuclear Deterrent: What Are the Requirements for a Strong Deterrent in an Era of Defense Sequester?* Hearing Before the U.S. House of Representatives, Committee on the Armed Services, 113th Cong., 1st sess., 2013, 20.

³⁰⁴ Nick Ritchie and Paul Ingram, “A Progressive Nuclear Policy: Rethinking Continuous–At–Sea Deterrence,” *RUSI Journal* 155, no. 2 (2010): 44.

Proponents of the global zero agenda believed that nuclear dangers are linked to force numbers, and that lower numbers signify greater safety, but for Josef Joffe and James Davis, numbers alone were not that critical to nuclear deterrence and stability because stability is related to political incentives, not just numbers. Joffe and Davis argued that stability results from the shared understanding that no nuclear-weapon power may employ its weapons against another nuclear-weapon power without risking its own destruction. Survivable second-strike capabilities are critical to this balance.³⁰⁵ The 2010 NPR debates about force levels included a reassessment of Cold War theories about strategic deterrence and stability similar to those advanced by Bernard Brodie and Thomas Schelling.

Nuclear triad debates following the 2010 NPR were marked by extended deterrence, arms control, and modernization concerns. Some commentators revisited the ideas that Cold War force levels were kept artificially high based on exaggerated fears about the fragility of great power peace and inflated challenges about the requirements for maintaining strategic deterrence. The authors of a 2013 Cato Institute study concluded that “A submarine-based monad, along with conventional capability, can provide all the deterrence we need, and save roughly \$20 billion a year. A dyad of ICBMs and SLBMs saves much less, but has a better chance of enactment due to the politics of bombers.”³⁰⁶ The authors were referring to the interests of the “bomber community and their political supporters” to maintain bomber force levels.³⁰⁷

In contrast, a Center for Strategic and International Studies monograph, also from 2013, argued that the 2010 NPR had correctly recommended the retention of a survivable nuclear triad as the best approach for sustaining strategic stability for the cost and to mitigate the possible challenges of technical and threat developments, but the report left

³⁰⁵ Josef Joffe and James W. Davis, “Less Than Zero,” *Foreign Affairs* 90, no. 1 (2011): 3.

³⁰⁶ Friedman, Preble, and Fay, *The End of Overkill*, 19.

³⁰⁷ *Ibid.*, 17.

open the idea that the future of the nuclear triad should be considered in future deliberations over force cuts.³⁰⁸

A 2014 RAND study of the U.S. ICBM force noted that U.S. New START planning envisaged an ICBM force of 420 or less, but the 2010 NPR discussed wide-ranging scenarios involving potential uses of ICBMs—or at least situations in which strategic weapons might deter, reassure, and help stabilize—such as maintaining strategic stability with China’s nuclear arsenal, addressing the nuclear activities of North Korea and Iran, and continuing U.S. nuclear guarantees—extended deterrence—to allies and partners.³⁰⁹ The ICBM forces recommended in the 2010 NPR were coordinated with the levels agreed under New START, and all Minuteman III missiles would carry only one warhead—or be “de-MIRVed,” the term used by the 2010 NPR. However, some analysts have questioned why the United States required an arsenal of that size, according to the authors of the RAND study entitled *The Future of the U.S. Intercontinental Ballistic Missile Force*.³¹⁰

While the 2010 NPR reaffirmed the U.S. need for a safe, secure, and effective nuclear force, maintained through a smaller but complete nuclear triad, the Obama administration pledged to modernize the nuclear force complex (infrastructure and systems) over ten years. However, the \$215 billion price estimated by the administration, according to some analysts, seemed to be quickly revealed as inadequate for the task and unaffordable in the context of defense budget restrictions.³¹¹ Evan Braden Montgomery, in a discussion of land-based missile and heavy bomber forces, argued in 2013 that postponing modernization would effectively mean “major” force cuts, given the advanced age of warheads and SDVs, the extended lead times to bring new capabilities on line, and the lack of personnel and facilities to restart nuclear weapons production if

³⁰⁸ Clark A. Murdock, Stephanie Spies, and John Warden, *Forging a Consensus for a Sustainable U.S. Nuclear Posture* (Lanham, MD: Rowman and Littlefield, 2013), 36.

³⁰⁹ Lauren Caston, Robert S. Leonard, Christopher A. Mouton, Chad J.R. Ohlandt, S. Craig Moore, Raymond E. Conley, and Glenn Buchan, *The Future of the U.S. Intercontinental Ballistic Missile Force* (Santa Monica, CA: RAND, 2014), xv.

³¹⁰ Ibid., 121–122.

³¹¹ Murdock, Spies, and Warden, *Forging a Consensus*, 1.

needed.³¹² The 2010 NPR recharged arguments for and against major changes to the nuclear triad, but the 2010 NPR recommendations clearly pointed to retention.

Public debates about the 2010 NPR and nuclear force structure directly involved issues of nuclear complex modernization and the ratification of New START. D’Anne Spence made an especially forceful argument for modernization. Spence argued that “any degradation” of the nuclear complex would weaken the strategic deterrent and concluded that the United States must maintain a focus on modernizing the entire nuclear enterprise, including nuclear weapons and supporting infrastructure, at the same time as arsenals are reduced in size and steps are taken to achieve global disarmament.³¹³

Other commentators saw problems in pursuing simultaneously the goals of force reductions and nuclear complex modernization. According to Clark Murdock, Stephanie Spies, and John Warden, in a 2013 CSIS policy study, the Obama administration aimed to reduce the role of nuclear weapons while taking concrete steps toward abolishing nuclear arsenals worldwide. These goals presented a difficulty for U.S. force modernization. The administration’s nuclear disarmament objectives made a tough argument even more difficult, at a time when policy makers discovered that nuclear complex modernization was a much higher priority than they had earlier realized.³¹⁴

Daryl Kimball argued in 2012 that nuclear weapons that do not deter nuclear attack by an adversary should not be invested in, given fiscal constraints, and that rather than refurbish tactical nuclear weapons still deployed in Europe but not required for the defense of NATO allies, “Congress could save billions by directing the weapons laboratories to focus on replacing the tritium and radar components” of the B61-7 strategic warhead.³¹⁵ Kimball seemed to assume that adversaries may be deterred with far lower U.S. nuclear force levels. Kimball did not explain how to determine which U.S.

³¹² Evan Braden Montgomery, *The Future of America’s Strategic Nuclear Deterrent* (Washington, DC: Center for Strategic and Budgetary Assessments, 2013), 26.

³¹³ D’Anne E. Spence, “Zero Nuclear Weapons and Nuclear Security Enterprise Modernization,” *Strategic Studies Quarterly* 5, no. 3 (Fall 2011): 121.

³¹⁴ Murdock, Spies, and Warden, *Forging a Consensus*, 64.

³¹⁵ Daryl G. Kimball, “Defuse the Exploding Costs of Nuclear Weapons,” *Arms Control Today*, December 2012, https://www.armscontrol.org/act/2012_12/Focus.

nuclear weapons do not have a deterrent effect, nor did he explain why the NATO allies at the Chicago Summit in May 2012 expressed firm support for maintaining U.S. nuclear weapons in Europe.

The Obama administration's perceived need for progress on the arms control agenda allowed officials with oversight of the nuclear infrastructure to secure the funding sorely needed to protect the viability of the strategic nuclear deterrent. Senators backed New START, which capped arsenals for the United States and Russia at historically low levels, in return for the Obama administration's promise to request \$185 billion over ten years for SDVs and infrastructure.³¹⁶ Modernization plans and increases in proposed spending generated significant commentary and fueled the arguments of some long-standing disarmament advocates.

2. Arms Control, Assurance, and Strategic Deterrence

Perceptions that the 2010 NPR was linked to the global zero agenda, and its real connections to New START, meant that deterrence theory debates tended to focus on arms control and strategic stability, nonproliferation, and deterrence at lower force levels. Charles Moxley, a professor at Fordham University School of Law, assessed that the 2010 NPR report itself expressed no serious commitment to nuclear disarmament because going to zero was described as a long-term policy goal to be accomplished over a significant amount of time.³¹⁷ Writing in 2011, David Baylor concluded that because of the difficulties in executing the coordinated disarmament of nuclear-weapon states and the perceived weakening of U.S. extended deterrence entailed by nuclear disarmament, the United States Air Force should reassess the non-strategic nuclear mission, and the Navy should pursue airborne nuclear delivery capabilities under the Air-Sea Battle concept to address bomber and forward-basing issues.³¹⁸

³¹⁶ Murdock, Spies, and Warden, *Forging a Consensus*, 54.

³¹⁷ Charles J. Moxley Jr., "Obama's Nuclear Posture Review: An Ambitious Program for Nuclear Arms Control but a Retreat from the Objective of Nuclear Disarmament," *Fordham International Law Journal* 34, no. 4 (2010): 734.

³¹⁸ David J. Baylor, "Considerations for a U.S. Nuclear Force Structure Below a 1,000-Warhead Limit," *Strategic Studies Quarterly* 5, no. 2 (2011): 69.

For some commentators, New START was less impressive than it appeared. According to George Perkovich, director of the Nuclear Policy Program at the Carnegie Endowment for International Peace, President Obama lacked the support of his administration or party. Because nuclear disarmament did not appear to figure into the activities of the national security advisor, or the secretaries of state or defense, the nuclear disarmament agenda appeared at times to be predominantly tied to the president and vice president. Disarmament did not appear to be a priority for many members of the executive or legislative branches, Perkovich argued.³¹⁹ Concerning the Prague agenda, or policy course, Perkovich noted that there was no effective mobilization of public opinion behind nuclear disarmament or nonproliferation agendas, nor an obvious elevation of related issues, including in the United States. The result was that after Prague there was an animated leader on the international stage prepared to reduce nuclear dangers with no broad base of support to make real change.³²⁰ Perkovich welcomed the New START Treaty but claimed that it required no “new thinking or action.”³²¹ Obama’s nuclear policy was positively received by international audiences and led to judgments that it paved the way for a successful 2010 NPT Review Conference. According to Harald Müller, the reception of Obama’s nuclear policy (and particularly New START) at the 2010 NPT Review Conference was remarkably positive. It was ignored only by Iran, and it was reluctantly accepted by Cuba.³²²

In discussing the disadvantages of a smaller nuclear arsenal, Keith Payne declared that there was very little clear correlation between deterrent effect and force numbers and types, and that there was no warrant for attaching high deterrence confidence to any specific force structure.³²³ Considering critics who argued that a smaller arsenal would threaten the effectiveness of U.S. extended deterrence guarantees, some commentators

³¹⁹ George Perkovich, “The Obama Nuclear Agenda One Year After Prague,” *Policy Outlook*, Carnegie Endowment for International Peace, March 31, 2010, 12.

³²⁰ *Ibid.*, 2.

³²¹ *Ibid.*

³²² Harald Müller, “A Nuclear Nonproliferation Test: Obama’s Nuclear Policy and the 2010 NPT Review Conference,” *Nonproliferation Review* 18, no. 1 (2011): 230.

³²³ Keith B. Payne, “Maintaining Flexible and Resilient Capabilities for Nuclear Deterrence,” *Strategic Studies Quarterly* 5, no. 2 (2011): 14–15. What might be called deterrence agnosticism.

responded that the Cold War experience with extended deterrence was not perfect. James Forsyth, B. Chance Saltzman, and Gary Schaub recalled that France developed its own nuclear capability, despite benefitting from U.S. extended deterrence protection in NATO, “highlighting the fact that security considerations are but one of many factors contributing to the development of a nuclear weapons program.” They concluded that “Security has always been relative, and deterrence is no different; a small number of nuclear weapons are all that is needed to achieve relative security.”³²⁴ President Obama reenergized proponents of a nuclear disarmament agenda and concluded New START to punctuate the key strategic deterrence decisions of the 2010 NPR, but public debates did not suggest any broad-based nuclear disarmament movement, in contrast with the late 1970s and early 1980s.

Aspects of assurance and extended deterrence figured in public debates about the 2010 NPR’s theory of deterrence. Michael Wheeler argued in 2010 that while many of the fundamental models of extended deterrence remained essentially as they were during the Cold War, U.S. policy makers should devote more attention to security partners to ensure the effectiveness of extended deterrence in a more multipolar, rapidly changing and unpredictable world. Wheeler noted that U.S. extended deterrence entailed more than a nuclear dimension, a point emphasized in the 2010 NPR. According to Wheeler, U.S. security guarantees are tied to perceptions by security partners that the United States is effectively “adapting to shifting power alignments in ways that security partners find acceptable.”³²⁵

Harald Müller concluded that different states saw what they wanted in the 2010 NPR report. Traditional nuclear-weapon states saw continuity, especially in the centrality of deterrence; Eastern European states saw “reassurance”; and NATO members interested in nuclear disarmament saw a viable policy path forward.³²⁶

³²⁴ James Wood Forsyth Jr., B. Chance Saltzman, and Gary Schaub Jr., “Minimum Deterrence and its Critics,” *Strategic Studies Quarterly* 4, no. 4 (2010): 8, 10.

³²⁵ Michael O. Wheeler, *The Changing Requirements of Assurance and Extended Deterrence* (Alexandria, VA: Institute for Defense Analyses, 2010), 47.

³²⁶ Harald Müller, “Flexible Responses: NATO Reactions to the U.S. Nuclear Posture Review,” *Nonproliferation Review* 18, no. 1 (2011): 120–121.

Baker Spring advocated that Congress pressure the Obama administration to prioritize nonproliferation over arms control, along with maintaining a modernized nuclear weapons complex, retain the option to use nuclear weapons in defense, and maintain operational flexibility in the nuclear force.³²⁷

Paul Meyer argued that the 2010 NPR, conducted in a transparent manner and resulting in a public final report, was meant to signal to allies and partners that U.S. extended deterrence is robust, and that it was meant to complement the administration's progressive foreign policy.³²⁸ In sum, the 2010 NPR revived debates about the means and importance of assuring allies and partners.

The 2010 NPR also provoked public debates about strategic deterrence. The 2010 NPR report clearly drew links between policies such as “de-MIRVing” and the broad international security concept of stability. James Acton analyzed the NPR report and discovered extensive uses of the word “stability” and its variations (49 uses in the main body of the report). Many uses related to de-MIRVing and the idea that this ICBM force change promoted stability by reducing incentives for a first strike.³²⁹ According to David Yost, the United States, with the 2010 NPR and the recommendation for de-MIRVing, reaffirmed a stability concept advanced by some Cold War theorists, but at the same time Washington recognized that Russia through its actions has demonstrated that it has not adopted the force characteristics prescribed by some U.S. theorists that are intended to bolster strategic stability.³³⁰ Yost concluded that such dissonance between U.S. and Russian conceptions of the requirements of strategic stability is relevant to allies that rely

³²⁷ See Baker Spring, “Nuclear Posture Review’s Missing Objective: Defending the U.S. and Its Allies Against Strategic Attack,” *Heritage Foundation Backgrounders*, no. 2400, Heritage Foundation, Washington, DC, April 14, 2010.

³²⁸ Paul Meyer, “Policy or Posturing: The U.S. Nuclear Posture Review in an International Context,” *International Journal* 66, no. 3 (2011): 664.

³²⁹ James M. Acton, “Reclaiming Strategic Stability,” in *Strategic Stability: Contending Interpretations*, eds. Elbridge A. Colby and Michael S. Gerson (Carlisle, PA: U.S. Army War College, Strategic Studies Institute, 2013), 118.

³³⁰ David S. Yost, “Strategic Stability in the Cold War: Lessons for Continuing Challenges,” *Institut Français des Relations Internationales*, Proliferation Papers (2011): 49–50.

on U.S. extended deterrence assurances; he noted that some allied observers have raised questions about the consistency of U.S. policy.³³¹

A 2011 paper in *Science and Global Security* countered the 2010 NPR claim that reducing alert levels would decrease crisis stability by creating incentives to strike first before re-alerting could be completed. The authors constructed a model indicating that a two-echelon force at different alert levels would eliminate first strike incentives because both sides would remain vulnerable to second strike retaliation. According to their model, there would be no reason to engage in “preemptive” re-alerting, because “second strike stability” would remain effective.³³²

Hans Rühle seemed to counter, at least partially, the argument outlined above. Rühle asserted that there was no basis for policy making based exclusively on assumptions about rational actors leading nuclear weapon states. In Rühle’s view, eventual deterrence failure is effectively assured, given a “multinuclear world,” and threats of a nuclear second strike to bolster deterrence against irrational adversaries “will not work.”³³³ Far from being a Cold War relic, for some writers, it is clear that strategic deterrence—especially with respect to Russia and China—remained relevant to U.S. nuclear posture calculations and decisions following the 2010 NPR.

3. Negative Security Assurances, “Sole Purpose,” and First Use

Public debates concerning the 2010 NPR’s redefined NSA included arguments about disarmament and a reduced role for nuclear weapons. Keith Payne considered Secretary of State Hillary Clinton’s biological weapons exception—that all response options would be considered in response to a biological weapon (BW) attack—a “useful

³³¹ Ibid.

³³² Bruce Blair, Victor Esin, Matthew McKinzie, Valery Yarynich, and Pavel Zolotarev, “One Hundred Nuclear Wars: Stable Deterrence between the United States and Russia at Reduced Nuclear Force Levels Off Alert in the Presence of Limited Missile Defenses,” *Science and Global Security* 19, no. 3 (2011): 186.

³³³ Hans Rühle, “Deterrence in an Increasingly Nuclear World,” *Comparative Strategy* 32, no. 2 (2013): 93.

elaboration,” in congressional testimony before the Subcommittee on Strategic Forces of the House Armed Services Committee.³³⁴

According to Charles Moxley, a critic of U.S. nuclear policy, there was no evidence that other U.S. nuclear policies and war plans had been correlated to the NSA stated in the 2010 NPR, and the 2010 NSA had questionable legal standing. Moxley made the point that the 2010 NPR did not formalize the NSA in a legally binding treaty (it is a policy statement that may be altered unilaterally by the United States), and he suggested what he meant by formality: “The NPR does not provide any objective criteria on what constitutes compliance with a state’s nuclear nonproliferation obligations, nor does it establish materiality requirements as to levels of noncompliance. Unfortunately, the ambiguity of this part of the declaration and apparent subjectivity of the underlying determination renders the meaning of the declaration uncertain.”³³⁵ It might be noted that the NSAs of all nuclear-weapon states include the option to make unilateral changes; the U.S. NSA is not unique in this respect.

Jonathan Pearl, a board member of the CSIS Project on Nuclear Issues in 2011, concluded that President Obama’s support for steps toward nuclear disarmament were not radical but politically measured, based on a long-standing policy formulation that eventual nuclear disarmament is in the U.S. interest, but that substantial moves in that direction should not be made at the expense of immediate security needs or requirements. The path to nuclear disarmament included major obstacles, Pearl continued, and some obstacles might require major international political shifts in thinking to overcome, meaning that the most likely policy steps would be gradual.³³⁶ President Obama’s public statements and efforts to reduce the role of nuclear weapons led some observers to conclude that the United States might completely eliminate its nuclear arsenal. But future U.S. nuclear weapons policy is actually “uncertain,” Pearl concluded, and popular accounts aside, President Obama’s policy is not dramatically different from U.S. policy

³³⁴ H.A.S.C. 112–12: *Status of the United States Strategic Forces*, 32.

³³⁵ Moxley, “Obama’s Nuclear Posture Review,” 752.

³³⁶ Jonathan Pearl, *Forecasting Zero: U.S. Nuclear History and the Low Probability of Disarmament* (Carlisle, PA: U.S. Army War College, Strategic Studies Institute, 2011), 40.

sixty-five years ago—that is, prioritizing arms control and nonproliferation incentives in the near-term, and disarmament in the long-term.³³⁷

Stephen Herzog, a nuclear disarmament and arms control researcher, wrote in 2010 that the Obama administration had achieved concrete steps toward effectively realigning U.S. nuclear weapons policy with other U.S. goals such as nonproliferation. Herzog highlighted that Obama administration efforts entailed steps to revitalize the international arms control agenda and nonproliferation regime. The 2010 NPR report was regarded by some observers as successfully reducing the role of nuclear weapons in U.S. national security. The United States under President Obama successfully hosted a Nuclear Security Summit and concluded the New START Treaty.³³⁸ The new NSA was positively received by some commentators but still drew criticism, primarily from staunch nuclear disarmament advocates such as Moxley.

Public debates surrounding the 2010 NPR regarding the role of nuclear weapons retouched the issues of fundamental purpose and nuclear disarmament. In their 2010 article, “Salvaging Global Zero: Diplomacy in the Second Nuclear Age,” Joachim Krause and Benjamin Schreer concluded that the 2010 NPR did not represent a significant break with earlier policy. The authors argued that the “basic tenets” of U.S. nuclear strategy were left undisturbed, and that New START was equally conservative—because nuclear weapons remained essential for U.S. military strategy, and for international security and stability. Continuity was reflected in traditional force structure recommendations such as the retention of the nuclear triad and continuing deployment of nonstrategic weapons in Europe.³³⁹

Then an instructor in international security at Melbourne University, Aiden Warren observed in 2011 that, despite the statements that the 2010 NPR had moved the U.S. nuclear posture away from Cold War thinking, the Obama administration actually

³³⁷ Ibid.

³³⁸ Stephen Herzog, “Obama, Nuclear Disarmament, and Ballistic Missile Subs,” *Bellum: A Project of the Stanford Review*, August 6, 2010, <http://bellum.stanfordreview.org/?p=2632>.

³³⁹ Joachim Krause and Benjamin Schreer, “Salvaging Global Zero: Diplomacy in the Second Nuclear Age,” *RUSI Journal* 155, no. 3 (2010): 44.

found it very difficult to advance policies in line with nonproliferation and disarmament goals, and that the role of nuclear weapons has been reduced very little. Warren referred to the 2010 NPR as “moribund in old postures,” and contrasted bold rhetorical aims with very limited actual change. The “moderate” NPR, Warren suggested, did not abandon the “Bush strategy.” Warren characterized the results of the Nuclear Security Summit and the NPT Review Conference as formulaic; the NPR report did not change the role of nuclear weapons to the extent suggested by earlier Obama administration policy declarations.³⁴⁰

In a wide-ranging critique of U.S. nuclear weapons policy, Thérèse Delpech suggested the disarray of Obama administration policy by writing that China “continued increasing and improving its ballistic and nuclear arsenal as well as its space and cyber capabilities” while Russia embraced a more aggressive nuclear doctrine (in February 2010), at the same time that the Obama administration NPR deliberated for months on how to characterize the objective of nuclear weapons, finally adopting the phrase “fundamental purpose” in order to include the possibility of a nuclear response to a biological attack.³⁴¹ Thus, one seasoned analyst clearly suspected that a damaging realignment of U.S. nuclear weapons policy goals had been advanced through the 2010 NPR.

Keith Payne observed that the Obama administration had stated commitments to maintaining an effective and credible deterrent, but the 2010 NPR report suggested a change in priorities, notably in its language about international nonproliferation priorities and steps toward global nuclear disarmament. Payne asserted that there would be inevitable and substantial “trade-offs” that would affect U.S. capabilities to assure, deter, and defend.³⁴²

Paul Schulte reasoned that the devaluation of nuclear weapons with no eventual global disarmament would be hard for policy makers to back, and that political elites

³⁴⁰ Aiden Warren, “The Promises of Prague Versus Nuclear Realities: From Bush to Obama,” *Contemporary Security Policy* 32, no. 2 (2011): 452.

³⁴¹ Delpech, *Nuclear Deterrence in the 21st Century*, 119.

³⁴² Keith B. Payne, “The Congressional Strategic Posture Commission Report and a Brief Assessment of Developments in U.S. Strategic Policy,” *Comparative Strategy* 30, no. 3 (2011): 194–195.

“embedded within most strategic cultures” would be wary of complete abolition even if they did not reveal their concerns publically.³⁴³ This might help to explain the lack of broad practical support from governments that President Obama received after endorsing something interpreted as a call for nuclear disarmament.

Three experts writing for the National Defense University observed that Obama policy advisors had worked to develop some capacity to address “large-scale WMD crises,” and that important organizational changes were implemented to facilitate administration counter-WMD goals, most prominently, Obama’s high-profile nuclear weapons agenda, which was closely associated with nuclear disarmament—an agenda calibrated to bolster international nonproliferation efforts, and especially to counter nuclear proliferation.³⁴⁴

Thérèse Delpech observed of the 2010 NPR report that putting countering nuclear terrorism and proliferation at the top of the list of priorities and putting maintaining strategic deterrence third was “weird.”³⁴⁵ Paul Schulte observed that there has not necessarily been a significant devaluation of nuclear weapons in the United States, though Russia has reasserted a commitment to nuclear deterrence, reinstated nuclear doctrine, and reemphasized the role of theater nuclear weapons in balancing conventional weaknesses. Schulte argued that to protect the credibility of U.S extended deterrence and keep allies from pursuing nuclear weapons programs, and to maintain sufficient reassurance of allies and partners, the 2010 NPR recommended against a “no first use” (NFU) pledge, to maintain ambiguity, a policy long followed by France and the United Kingdom, which accept the value of keeping ambiguity foremost in the minds of potential adversaries.³⁴⁶ Some 2010 NPR commentators saw no change in role or purpose partly because there was no profound change in force structure. There were

³⁴³ Paul Schulte, “The Strategic Risks of Devaluing Nuclear Weapons,” *Contemporary Security Policy* 34, no. 1 (2013): 211–212.

³⁴⁴ Paul I. Bernstein, John P. Caves Jr., and W.S. Carus, *Countering Weapons of Mass Destruction: Looking Back, Looking Ahead*, Occasional Paper, no. 7 (Washington, DC: National Defense University, Center for the Study of Weapons of Mass Destruction, 2009), 45.

³⁴⁵ Delpech, *Nuclear Deterrence in the 21st Century*, 139.

³⁴⁶ Schulte, “The Strategic Risks of Devaluing Nuclear Weapons,” 211–212.

sustained critiques about high rhetoric but low-impact actions addressing long-standing policy issues.

The 2010 NPR revived issues related to first-use. Scott Sagan argued that an unambiguous NFU declaratory policy would negatively impact deterrence by reducing the risk calculations of an adversary considering using chemical or biological weapons attacks—that the United States would respond with nuclear weapons—but it would also reduce the likelihood that the United States would actually use nuclear weapons first.³⁴⁷

Contrary to Sagan’s NFU argument, Timothy Fischer, in a U.S. Army War College study from 2012, countered that the United States should retain a policy of possible nuclear response to WMD because of the important role of ambiguity in national security policy flexibility and deterrence. Fischer recommended that the United States maintain the flexibility of an ambiguous response policy because other states have declared the option to respond to WMD attacks with nuclear weapons. In Fischer’s view, the United States should not rule out a nuclear response to deter hostile states or non-state actors from attacking the United States or its allies.³⁴⁸

Sagan recommended in 2009 that the 2010 NPR review more than deterrence requirements, and that it analyze of the impact of U.S. declaratory policy on nuclear proliferation, the consequences of proliferation, and “perceptions of the illegitimacy of nuclear terrorism.”³⁴⁹ He argued that a broad review agenda would conclude with the adoption of an NFU policy, based on a “sole purpose” argument that U.S. nuclear weapons serve exclusively to deter nuclear weapons use by other nuclear weapon states against the United States, its allies, and its armed forces. Sagan added that the United States should be able to respond with an “appropriate” array of nuclear second-strike options, if necessary, if deterrence fails.³⁵⁰

³⁴⁷ Scott D. Sagan, “The Case for No First Use,” *Survival* 51, no. 3 (2009): 171.

³⁴⁸ Timothy P. Fischer, *Post-Cold War Nuclear Weapons Policy* (Carlisle Barracks, PA: U.S. Army War College, 2012), 20.

³⁴⁹ Sagan, “The Case for No First Use,” 178.

³⁵⁰ *Ibid.*, 164.

Michael Gerson argued that the 2010 NPR failed to capitalize on an opportunity to substantially alter U.S. nuclear weapons policy. Gerson concluded that policy makers were trying to keep the president's options open, but classical deterrence theory based on ideas of Thomas Schelling about self-limiting options could enhance deterrence and promote strategic stability. In Gerson's view, adopting an NFU policy and taking the first-use option off the table would firm up crisis stability, reinforce conventional deterrence, and afford the United States added leadership leverage and legitimacy concerning international nonproliferation.³⁵¹ In sum, the first-use debates provoked by the 2010 NPR were not extensive but revived arguments dating from the Cold war about crisis stability and strengthening deterrence.

³⁵¹ Michael S. Gerson, "No First Use: The Next Step for U.S. Nuclear Policy," *International Security* 35, no. 2 (2010): 47.

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V. CONCLUSION

David Lonsdale of the University of Hull observed in 2013 that the unique challenge of nuclear strategy is how a state may “harness” the overwhelming destructive power of nuclear weapons as an instrument for achieving the ends of policy.³⁵² Michael Rühle noted that American strategy has shifted with each administration since the end of the Cold War in 1991.³⁵³ Rühle’s observation may be extended to the three Nuclear Posture Reviews. Each administration attempted to define a transformative nuclear strategy. The NPRs have had a mixed record in guiding national security policy concerning nuclear weapons. Policies regarding the roles of nuclear weapons and theories of deterrence have marked the different approaches of the post–Cold War U.S. administrations, but the NPRs have been mostly justifications for force structure plans, with some attention to revising declaratory policy.

A. SUMMARY

All three NPRs reviewed to some extent whether nuclear weapons can be said to have a sole purpose: to deter and counter nuclear attacks by an adversary. The 1994 NPR accepted that a fundamental purpose of nuclear weapons was to deter large attacks and to be prepared to inflict massive damage, but it also recognized other uses, including reinforcing the security guarantees behind extended deterrence. The 1990s policy debates ended with two clear policy approaches, one based on a “sole purpose” role and one based on a multi-purpose role for nuclear weapons. The 2001 NPR clearly identified a broader array of potential threats that the United States needed to be prepared to counter, as compared to the 1994 NPR; and the 2001 NPR appeared to broaden the roles of nuclear weapons by linking them to multiple defense policy goals. Debates over the roles of nuclear weapons in the 2001 NPR were dominated by concerns over proliferation, different conceptions of “new” threats including nuclear terrorism, and whether such exigencies required the development of newer and more usable nuclear weapons. The

³⁵² Lonsdale, “Obama’s Second Term,” 460.

³⁵³ See Michael Rühle, “Continuity in America’s Nuclear Strategy,” *Politische Studien* 60, no. 427 (2009): 74–77.

2010 NPR repeated long-standing policy on the fundamental role of nuclear weapons, elevated nuclear terrorism and nuclear proliferation as threats, and attempted to clarify the role of nuclear weapons through a revised NSA. The 2010 NSA was well-received by some commentators, but others were disappointed that the role of nuclear weapons had not actually changed substantially and that the overall U.S. strategic nuclear force structure remained a triad. Many decisions and debates tended to assume a correlation between the role of nuclear weapons and nuclear force structure, force levels and the mix of strategic delivery vehicles (SDVs).

The NPRs attempted to redefine deterrence in the absence of the Soviet Union—the main U.S. preoccupation during the Cold War. Even though mutual assured destruction (MAD) was understood to be outdated, the 1994 NPR did not describe deterrence in terms substantially different from those predominant during the Cold War. Debates following the 1994 NPR exhibited different attempts to understand the applicability of deterrence stability in a multi-power environment and whether the United States could return to a position of enjoying high-confidence deterrence given post-Cold War threats.

Tailored deterrence seemed to influence ideas that were worked out in the 2001 NPR; tailored deterrence looked like it might provide the answer to how deterrence could be effectively achieved against post-Cold War threats. While the 2001 NPR was concerned with restoring some utility to nuclear weapons and some credibility to U.S. deterrent threats, critics charged that its efforts might increase the likelihood of nuclear use by expanding the opportunities for deterrence.

The 2010 NPR refocused on strategic deterrence and strategic stability (New START with Russia was an overt example) and prominently discussed extended deterrence and assurance of allies and partners. Debates about deterrence and the 2010 NPR focused on how the United States might maintain traditional deterrence objectives at lower force levels. Work completed in exploring new forms of deterrence beyond the bipolar superpower context, especially related to and following the 2001 NPR, was promising but not emphasized in the 2010 NPR.

All three NPRs attempted to reduce force structure without reducing what were perceived to be needed deterrence and defense capabilities. Each of the three NPRs was closely associated with a strategic arms control agreement with Russia. The 1994 NPR aimed to reduce force levels—and hence reduce the role of nuclear weapons, according to official policy statements—but protect capabilities by maintaining a “hedge” force of stockpiled warheads (within START II limits). Debates about the 1994 NPR force structure were shaped by public perceptions that defense spending should be reduced and that nuclear weapons were no longer needed in the same way as during the Cold War. The George W. Bush administration dramatically reduced operationally deployed strategic nuclear warheads but also employed a “hedging” approach by reserving warheads for possible future use. Most significantly, the Bush administration enacted a new force structure plan—in the form of the New Triad—that aimed to deemphasize the role of nuclear weapons while increasing defense planning flexibility. Public debates over the 2001 NPR’s force structure were deeply colored by claims that the nuclear force cuts were disingenuous and that the New Triad blurred the distinctions between nuclear and non-nuclear missions, and thus lowered the nuclear use threshold. The 2010 NPR emphasized the need to make reasonable nuclear force cuts while preserving recent advances in missile defenses and conventional weapons capabilities and retaining a nuclear triad. Public debates over the 2010 NPR force structure returned to perennial arguments about the necessity of a triad and the role of nuclear complex modernization in meeting deterrence requirements. The NPRs have been used to justify force structure decisions and consequently the debates related to the NPRs have been dominated by force structure concerns and requirements.

B. ANALYSIS

The nuclear weapons policy issues that affected the NPRs included whether a narrow, counter-nuclear only role would be preferable to a wider role across a range of threat scenarios, and whether to retain a first-use option.³⁵⁴ Though each NPR proclaimed the need for a new nuclear weapons policy, actual declaratory policy, with

³⁵⁴ See T.V. Paul, Patrick M. Morgan, and James J. Wirtz, eds., *Complex Deterrence: Strategy in the Global Age* (Chicago: University of Chicago Press, 2009), Ch. 2.

respect to possible first use, the multi-purpose (not “sole purpose”) function, and NSAs has remained largely consistent, except for the adjustment in the NSA in the 2010 NPR. Important to the evolution of post–Cold War U.S. nuclear strategy have been domestic and international perceptions of the utility of nuclear weapons and their roles. According to Paul Davis, a gradual reduction in the apparent willingness of the United States to respond with nuclear weapons has gradually eroded the credibility of nuclear use threats since the 1960s.³⁵⁵ According to Harald Müller, a German commentator, the most significant nuclear weapons policy “success” of the Obama administration has been the reversal in international perceptions that the United States was undermining the nuclear nonproliferation regime and devaluing the Nonproliferation Treaty.³⁵⁶

Present in all three NPRs was a central effort to reformulate and reassert rhetorical designs to win political support for elements of declaratory policy, especially with regard to reducing the role of nuclear weapons. For example, the 2010 NPR garnered unusual attention as an extension of President Obama’s public declarations about nuclear disarmament, but the key decisions of the 2010 NPR report were relatively conservative and similar to those of earlier NPRs.

Although many aspects of U.S. nuclear strategy remained uniform across the three NPRs, there have been important changes. Thomas Scheber concluded in 2007 that since the end of the Cold War policy makers have made concerted efforts to remake U.S. “strategic capabilities” to better address the threats of the current security environment while reducing U.S. reliance on nuclear weapons. The 2001 NPR’s New Triad was a higher-profile example of such an attempt.³⁵⁷

Nuclear arsenals overall have shrunk in size and variety in France, the United Kingdom, and the United States. (They continue to expand elsewhere, notably in China and Pakistan.) Each of the three NPRs professed an intention to rethink all aspects of deterrence requirements, given an assessment of the contemporary threat environment.

³⁵⁵ Davis, *Structuring Analysis to Support Future Decisions*, 7.

³⁵⁶ Müller, “A Nuclear Nonproliferation Test,” 219.

³⁵⁷ Thomas Scheber, “U.S. Nuclear Policy and Strategy and the NPT Regime: Implications for the NATO Alliance,” *Comparative Strategy* 26, no. 2 (2007): 125.

The three NPRs each concluded that deterrence was essential to U.S. national security interests and policy goals. The Obama administration's 2010 NPR shaped U.S. nuclear strategy by elevating nuclear terrorism and proliferation as threats, emphasizing advances in conventional weapon capabilities that suggested a shrinking role for nuclear weapons, and establishing paths for potential further force reductions. President Obama generally succeeded in steering the 2010 NPR in line with his earlier policy vision and direction, but his administration's actual statements on the purposes of nuclear weapons and NSAs were not revolutionary. They were evolutionary and reaffirmed earlier policy formulations for the most part, aside from the 2010 NPR's NSA. There were attempts during the NPRs to arrive at new conceptions of deterrence but the fundamentals of strategic deterrence remained essentially unchanged. The recognition that all actors would not respond to deterrent threats similarly was nonetheless an important advance in deterrence understanding. It was reflected in official interest in "tailored deterrence."

Each of the three NPRs emphasized the importance of policy recommendations made in light of an uncertain future, which consistently led to the strategy of maintaining a so-called hedge force. The 1994 NPR produced an explicit "hedge" force, the 2001 NPR also emphasized hedging against uncertainty, and Secretary Gates spoke publically about a hedge force in relation to the 2010 NPR. The most influential outcome of the Clinton administration NPR was in fact the hedge force.

The most influential nuclear weapons policy decision—in the sense having a lasting impact—of the Bush administration was the establishment of a New Triad meant to strengthen national security by making the nuclear weapons arsenal and nuclear weapons complex more robust and responsive to defense policy requirements. Responsiveness was defined not only as the ability to reconstitute a larger arsenal in a short period, but also as a capacity to devise new types of weapons and associated assets. Although the Obama administration did not retain the George W. Bush administration "New Triad" concept, it has acknowledged the importance of maintaining a responsive infrastructure.

The Obama administration's NPR attracted substantial attention with the perceived link to the "global zero" agenda, but ambitious plans for nuclear disarmament

were not new in 2010. The NPRs expressed an aspiration that had already been long-established. The NPRs were important indicators of what had already been accepted by policy makers about the role of nuclear weapons in meeting deterrence requirements. The NPRs did not serve as instruments to chart entirely new policy courses. They signaled changes in tack, not course, despite the declared claims of each administration.

C. CONCLUSION

The NPRs as official products were meant to speak primarily to the nation's nuclear posture. The sensitive nature of nuclear weapons issues meant that not a few commentators highlighted the most controversial aspects of nuclear policy. The NPRs were deliberative processes focused on the nation's nuclear force posture, but their impact on policy and strategy was widely accepted by policy makers, policy advocates, and commentators. Each of the NPRs aimed to change the nuclear posture in particular ways; all three NPRs made overt claims to breaking with past thinking and recommending fundamental force posture changes. In each case, the proposed changes included a significant declaratory component. U.S. nuclear deterrence requirements have changed since the end of the Cold War as a result of changes in the international threat environment and the demands of other national policies. Compared with the Cold War, the U.S. nuclear weapons arsenal features smaller numbers of warheads and fewer types of warheads and delivery systems, but the overall deterrence posture is more complex, due to the emergence of cyber capabilities, among other factors. The NPRs helped to clarify U.S. nuclear weapons policy objectives and explain the relevance of nuclear weapons policy in conjunction with other national policy goals. U.S. deterrence objectives have remained fairly stable; definitions of deterrence requirements have changed markedly across each post-Cold War administration.

Continuities across the NPRs include the reduced role of the U.S. nuclear arsenal, deterrence objectives keyed to contemporary threats, and a force structure that emphasizes diverse capabilities with lower nuclear force levels. Nuclear weapons policy issues are not going away anytime soon, because U.S. national security strategy continues

to emphasize the fundamental role of nuclear weapons in deterrence and the central role of deterrence in ensuring U.S. and allied security and international stability.

Fundamental issues concerning nuclear deterrence requirements for U.S. national security nonetheless remain unresolved. Fundamentally different views, interpretations, and priorities persist about how to deter adversaries, the nature of national security threats, and the merits of nuclear forces in the national deterrence posture.

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LIST OF REFERENCES

- Acton, James M. "Reclaiming Strategic Stability." In *Strategic Stability: Contending Interpretations*, edited by Elbridge A. Colby and Michael S. Gerson, 117–146. Carlisle, PA: U.S. Army War College, Strategic Studies Institute, 2013.
- Aspin, Leslie. *Annual Report to the President and the Congress*. Washington, DC: Government Printing Office, 1994.
- . *Report on the Bottom-Up Review*. Washington, DC: Department of Defense, 1993.
- Baylor, David J. "Considerations for a U.S. Nuclear Force Structure Below a 1,000–Warhead Limit." *Strategic Studies Quarterly* 5, no. 2 (2011): 52–72.
- Bernstein, Paul I., John P. Caves Jr., and W.S. Carus. *Countering Weapons of Mass Destruction: Looking Back, Looking Ahead*. Occasional Paper, no. 7. Washington, DC: National Defense University, Center for the Study of Weapons of Mass Destruction, 2009.
- Blackwell, James. "Deterrence at the Operational Level of War," *Strategic Studies Quarterly* 5, no. 2 (2011): 30–51.
- Blair, Bruce, Victor Esin, Matthew McKinzie, Valery Yarynich, and Pavel Zolotarev. "One Hundred Nuclear Wars: Stable Deterrence between the United States and Russia at Reduced Nuclear Force Levels Off Alert in the Presence of Limited Missile Defenses." *Science and Global Security* 19, no. 3 (2011): 167–194.
- Blair, Bruce, and Chen Yali. "The Fallacy of Nuclear Primacy." *China Security* (Autumn 2006): 51–77.
- Boldrick, Michael R. "The Nuclear Posture Review: Liabilities and Risks." *Parameters* 25 (Winter 1995–1996): 80–91.
- Bromley, Mark. "'Planning to be Surprised': The U.S. Nuclear Posture Review and Its Implications for Arms Control." British American Security Information Council (BASIC) Papers 39, April 2002.
- Buchan, Glenn. "Nuclear Weapons and U.S. National Security: Strategy for a New Century." In *Strategic Appraisal: United States Air and Space Power in the 21st Century*, edited by Zalmay Khalilzad and Jeremy Shapiro, 225–282. Santa Monica, CA: RAND, 2002.

- Buchan, Glenn, David Matonick, Calvin Shipbaugh, and Richard Mesic. *Future Roles of U.S. Nuclear Forces: Implications for U.S. Strategy*. Santa Monica, CA: RAND, 2003.
- Bunn, M. E., and Richard D. Sokolsky. "The U.S. Strategic Posture Review: Issues for the New Administration." *Strategic Forum*, no. 177 (2001): 1–4.
- Burns, William F. "The Future of U.S. Nuclear Weapons Policy." *Arms Control Today* 27, no. 7 (1997): 3–5.
- Bush, George H. W. *National Security Strategy of the United States*. Washington, DC: The White House, 1991.
- Bush, George W. *The National Security Strategy of the United States of America*. Washington, DC: The White House, 2002.
- . *The National Security Strategy of the United States of America*. Washington, DC: The White House, 2006.
- Butfoy, Andrew. "Perpetuating U.S. Nuclear 'First-Use' into the Indefinite Future: Reckless Inertia or Pillar of World Order?" *Contemporary Security Policy* 23, no. 2 (2002): 149–168.
- Cambone, Stephen A., and Patrick J. Garrity. "The Future of U.S. Nuclear Policy." *Survival* 36, no. 4 (1994–1995): 73–95.
- Caston, Lauren, Robert S. Leonard, Christopher A. Mouton, Chad J.R. Ohlandt, S. Craig Moore, Raymond E. Conley, and Glenn Buchan. *The Future of the U.S. Intercontinental Ballistic Missile Force*. Santa Monica, CA: RAND, 2014.
- Caves Jr., John P. "Avoiding a Crisis of Confidence in the U.S. Nuclear Deterrent." *Strategic Forum*, no. 252 (January 2010): 1–6.
- Cerniello, Craig. "Clinton Issues New Guidelines on U.S. Nuclear Weapons Doctrine." *Arms Control Today* 27, no. 8 (1997): 23.
- Cheney, Dick. *Annual Report to the President and the Congress*. Washington, DC: Office of the Secretary of Defense, 1993.
- . *Annual Report to the President and the Congress*. Washington, DC: Office of the Secretary of Defense, 1992.
- Cirincione, Joseph. "Prospects for Change in U.S. Nuclear Policy." In *Nuclear Doctrines and Strategies*, edited by M. Fitzpatrick, A. Nikitin, and S. Oznobishchev, 30–38. Amsterdam, Netherlands: IOS Press, 2008.

- Clinton, William J. *A National Security Strategy for a New Century*. Washington, DC: The White House, 1998.
- Cohen, William S. *Annual Report to the President and the Congress*. Washington, DC: Government Printing Office, 1997.
- . *Annual Report to the President and the Congress*. Washington, DC: Office of the Secretary of Defense, 2000.
- Colby, Elbridge. “Restoring Deterrence.” *Orbis* 51, no. 3 (2007): 413–428.
- Daalder, Ivo, and James Lindsay. “A New Agenda for Nuclear Weapons.” *Policy Brief*, no. 94. Washington, DC, Brookings Institute, 2002.
- Davis, Paul K. *Structuring Analysis to Support Future Decisions about Nuclear Forces and Postures*. Santa Monica, CA: RAND, 2011.
- Defense Science Board. *Report of the Defense Science Board Task Force on Nuclear Capabilities Report Summary*. Washington, DC: Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, 2006.
- . *Report of the Defense Science Board Task Force on Nuclear Deterrence*. Washington, DC: Office of the Under Secretary of Defense for Acquisition and Technology, 1998.
- Delpech, Thérèse. *Nuclear Deterrence in the 21st Century: Lessons from the Cold War for a New Era of Strategic Piracy*. Santa Monica, CA: RAND, 2012.
- DOD News Briefing with Secretary Gates, Navy Admiral Mullen, Secretary Clinton, and Secretary Chu from the Pentagon*. April 6, 2010.
- Doyle, James. “Strategy for a New Nuclear Age.” *Nonproliferation Review* 13, no. 1 (2006): 89–111.
- Essentials of Post–Cold War Deterrence*. Headquarters, United States Strategic Command, 1995. <http://www.nukestrat.com/us/stratcom/SAGessentials.PDF>.
- “Fact Sheet: The Legacy of START and Related U.S. Policies,” Bureau of Verification, Compliance, and Implementation, July 16, 2009.
- Feith, Douglas J. *Statement before the Senate Armed Services Committee hearing on the Nuclear Posture Review*, February 14, 2002.
- Filler, Robert J. *U.S. Strategic Nuclear Forces in the Post Strategic Arms Reduction Talk World: Is There a Future for Nuclear Deterrence?* Carlisle Barracks, PA: U.S. Army War College, 1998.

- Fischer, Timothy P. *Post–Cold War Nuclear Weapons Policy*. Carlisle Barracks, PA: U.S. Army War College, 2012.
- Forsyth Jr., James Wood, B. Chance Saltzman, and Gary Schaub Jr. “Minimum Deterrence and its Critics.” *Strategic Studies Quarterly* 4, no. 4 (2010): 3–12.
- Friedman, Benjamin, Christopher Preble, and Matt Fay. *The End of Overkill? Reassessing U.S. Nuclear Weapons Policy*. Washington, DC: Cato Institute, 2013.
- Gabel, Josiane. “The Role of U.S. Nuclear Weapons after September 11.” *Washington Quarterly* 28, no. 1 (2004–2005): 181–195.
- Gerson, Michael S. “No First Use: The Next Step for U.S. Nuclear Policy.” *International Security* 35, no. 2 (2010): 7–47.
- Gompert, David C., Ken Watman, and Dean A. Wilkening. *U.S. Nuclear Declaratory Policy: The Question of Nuclear First Use*. Santa Monica, CA: RAND, 1995.
- Goodpaster, Andrew J., and C. Richard Nelson. *Post–Cold War Conflict Deterrence*. Washington, DC: National Academy Press, 1997.
- Goodpaster, Andrew J. “The Declining Utility of Nuclear Weapons.” *Washington Quarterly* 20, no. 3 (1997): 91–95.
- Gray, Colin S. “Nuclear Strategy: What is True, What is False, What is Arguable.” *Comparative Strategy* 9, no. 1 (1990): 1–32.
- Gray, Colin S., and Keith Payne. “Victory is Possible.” *Foreign Policy* 39 (Summer 1980): 14–27.
- Grotto, Andrew, and Joseph Cirincione. *Orienting the 2009 Nuclear Posture Review: A Roadmap*. Washington, DC: Center for American Progress, 2008.
- H. Hrg.: U.S. Nuclear Policy*. Committee on Foreign Affairs, 103rd Cong., 2nd sess., 1995.
- H.A.S.C. 112-12: Status of the United States Strategic Forces*. Subcommittee on Strategic Forces of the Committee on Armed Services, 112th Cong., 1st sess., 2011.
- H.A.S.C. No. 110-73: U.S. Nuclear Weapons Policy*. Hearing before the Strategic Forces Subcommittee of the Committee on Armed Services, House of Representatives, 110th Cong., 1st sess., 2008.
- H.A.S.C. No. 113-14: Hearing on National Defense Authorization Act for Fiscal Year 2014 and Oversight of Previously Authorized Programs Before the Committee on Armed Services*. 113th Cong., 1st sess., 2013.

H.N.S.C. No. 105-11: Threats to U.S. National Security. Hearing Before the Committee on National Security, House of Representatives, 105th Cong., 1st sess., 1997.

Hall, Gwendolyn M., John T. Cappello, and Stephen R. Lambert. *A Post–Cold War Nuclear Strategy Model*. U.S. Air Force Academy, CO: Institute for National Security Studies, 1998.

Hearing to Receive Testimony on Nuclear Forces and Policies in Review of the Defense Authorization Request for Fiscal Year 2014 and the Future Years Defense Program. Hearing Before the United States Senate Committee on Armed Services, Subcommittee on Strategic Forces, 113th Cong., 1st sess., 2013.

Helfstein, Scott, Michael J. Meese, Don Rassler, Reid Sawyer, Troy Schnack, Mathew Sheiffer, Scott Silverstone, and Scott Taylor. “White Paper Prepared for the Secretary of Defense Task Force on DOD Nuclear Weapons Management: Tradeoffs and Paradoxes: Terrorism, Deterrence and Nuclear Weapons.” *Studies in Conflict and Terrorism* 32, no. 9 (2009): 776–801.

Herzog, Stephen. “Obama, Nuclear Disarmament, and Ballistic Missile Subs.” *Bellum: A Project of the Stanford Review*, August 6, 2010, <http://bellum.stanfordreview.org/?p=2632>.

Joffe, Josef, and James W. Davis. “Less Than Zero.” *Foreign Affairs* 90, no. 1 (2011): 2–9.

Joint Chiefs of Staff. *National Military Strategy of the United States*. Washington, DC: Government Printing Office, 1992.

Kerrey, Robert, and William D. Hartung. “Toward a New Nuclear Posture: Challenges for the Bush Administration.” *Arms Control Today* 31, no. 3 (2001): 3–7.

Kimball, Daryl G. “Defuse the Exploding Costs of Nuclear Weapons.” *Arms Control Today*, December 2012, https://www.armscontrol.org/act/2012_12/Focus.

Kimball, Daryl G., Janne E. Nolan, Rose Gottemoeller, and Morton H. Halperin. “Parsing the Nuclear Posture Review.” *Arms Control Today* 32, no. 2 (2002): 15–21.

Kokoshin, Andrei. “A Nuclear Response to Nuclear Terror: Reflections of Nuclear Preemption.” *Annals of the American Academy of Political and Social Science* 607 (September 2006): 59–63.

Krause, Joachim. “Enlightenment and Nuclear Order.” *International Affairs* 83, no. 3 (2007): 483–499.

- Krause, Joachim, and Benjamin Schreer. "Salvaging Global Zero: Diplomacy in the Second Nuclear Age." *RUSI Journal* 155, no. 3 (2010): 42–46.
- Krepon, Michael. "Moving Away from MAD." *Survival* 43, no. 2 (2001): 81–96.
- Kristensen, Hans M. "Targets of Opportunity: How Nuclear Planners Found New Targets for Old Weapons." *Bulletin of the Atomic Scientists* 53, no. 5 (1997): 22–28.
- . "U.S. Nuclear Strategy Reform in the 1990s." Working paper, Nautilus Institute, Berkeley, CA, 2000.
- Kristensen, Hans M., and Robert S. Norris. "Reviewing Nuclear Guidance: Putting Obama's Words into Action." *Arms Control Today* 41, no. 9 (2011): 12–19.
- Kristensen, Hans M., Robert S. Norris, and Ivan Oelrich. "From Counterforce to Minimal Deterrence: A New Nuclear Policy on the Path Toward Eliminating Nuclear Weapons." Occasional Paper, no. 7. Federation of American Scientists/Natural Resources Defense Council, April 2009.
- Lehman, John. "U.S. Defense Policy Options: The 1990s and Beyond." *Annals of the American Academy of Political and Social Science* 517 (September 1991): 193–202.
- Levi, Michael A. "Deterring Nuclear Terrorism." *Issues in Science and Technology* 20, no. 3 (2004): 70–73.
- Lieber, Keir A., and Daryl G. Press. "The End of MAD? The Nuclear Dimension of U.S. Primacy." *International Security* 30, no. 4 (2006): 7–44.
- . "The Rise of U.S. Nuclear Primacy." *Foreign Affairs* 85, no. 2 (2006): 42–54.
- Lonsdale, David. "Obama's Second Term: Time for a New Discourse on Nuclear Strategy." *Comparative Strategy* 32, no. 5 (2013): 459–473.
- Manning, Robert A. "The Nuclear Age: The Next Chapter." *Foreign Policy* 109 (1997–1998): 70–84.
- McCgwire, Michael. "Eliminate or Marginalize? Nuclear Weapons in U.S. Foreign Policy." *Brookings Review* 13, no. 2 (1995): 36–41.
- McKinzie, Matthew G., Thomas B. Cochran, Robert S. Norris, and William M. Arkin. *The U.S. Nuclear War Plan: A Time for Change*. Washington, DC: Natural Resources Defense Council, 2001.
- Meyer, Paul. "Policy or Posturing: The U.S. Nuclear Posture Review in an International Context." *International Journal* 66, no. 3 (2011): 663–676.

- Miceli, Frank. "Strategic Nuclear Weapons: A Force for the Post–Cold War World." *Studies in Conflict & Terrorism* 18, no. 4 (1995): 335–348.
- Miller, Tim, and Rebecca Davis. *De–Alerting Nuclear Forces*. U.S. Air Force Academy, CO: Institute for National Security Studies, 2009.
- Montgomery, Evan Braden. *The Future of America’s Strategic Nuclear Deterrent*. Washington, DC: Center for Strategic and Budgetary Assessments, 2013.
- Moxley Jr., Charles J. "Obama’s Nuclear Posture Review: An Ambitious Program for Nuclear Arms Control but a Retreat from the Objective of Nuclear Disarmament." *Fordham International Law Journal* 34, no. 4 (2010): 734 –775.
- Müller, Harald. "A Nuclear Nonproliferation Test: Obama’s Nuclear Policy and the 2010 NPT Review Conference." *Nonproliferation Review* 18, no. 1 (2011): 219–236.
- . "Flexible Responses: NATO Reactions to the U.S. Nuclear Posture Review." *Nonproliferation Review* 18, no. 1 (2011): 103–124.
- Muradian, Vago. "STRATCOM Considers Changes to Nuclear Triad." *Defense Daily* 199, no. 1 (1998): 1.
- Murdock, Clark A. *The Department of Defense and the Nuclear Mission in the 21st Century*. Washington, DC: Center for Strategic and International Studies, 2008.
- Murdock, Clark A., Stephanie Spies, and John Warden. *Forging a Consensus for a Sustainable U.S. Nuclear Posture*. Lanham, MD: Rowman and Littlefield, 2013.
- Nolan, Janne E. "Preparing for the 2001 Nuclear Posture Review." *Arms Control Today* 30, no. 9 (2000): 10–14.
- . *An Elusive Consensus: Nuclear Weapons and American Security after the Cold War*. Washington, DC: Brookings Institution, 1999.
- Nuclear Deterrent: What Are the Requirements for a Strong Deterrent in an Era of Defense Sequester?* Hearing Before the U.S. House of Representatives, Committee on the Armed Services, 113th Cong., 1st sess., 2013.
- Nuclear Posture Review [Excerpts]*, submitted to Congress December 31, 2001, dated January 8, 2002, <http://www.stanford.edu/class/polisci211z/2.6/NPR2001leaked.pdf>.
- Nyland, F.S. *Some Potential Risks at Lower Levels of Strategic Nuclear Weapon Arsenals*. Idaho Springs, CO: Nyland Enterprises, 1998.
- Obama, Barack. *National Security Strategy*. Washington, DC: The White House, 2010.

- Oelrich, I.C. *Sizing Post–Cold War Nuclear Forces*. Alexandria, VA: Institute for Defense Analyses, 2001.
- Office of the Press Secretary, The White House. “Fact Sheet: Nuclear Weapons Employment Strategy of the United States.” June 19, 2013.
- Office of the White House Press Secretary. “Statement by President Barack Obama on the Release of Nuclear Posture Review.” April 6, 2010.
- Ottaway, David B., and Steve Coll. “Trying to Unplug the War Machine.” *Washington Post*, April 12, 1995, A1.
- “Overview of Nuclear Posture Review (NPR) Results,” United States Strategic Command, ca. September 22, 1994.
- Owens, Mackubin Thomas. “A Balanced Force Structure to Achieve a Liberal World Order.” *Orbis* 50, no. 2 (2006): 307–325.
- Pape, Robert A. “Soft Balancing Against the United States.” *International Security* 30, no. 1 (2005): 7–45.
- Parks, Edwin T. *Nuclear Strategy in the New World Order*. Washington, DC: National War College, 2002.
- Payne, Keith B. “Maintaining Flexible and Resilient Capabilities for Nuclear Deterrence.” *Strategic Studies Quarterly* 5, no. 2 (2011): 13–29.
- . “Moving Beyond the Cold War’s Nuclear ‘Balance of Terror.’” *Comparative Strategy* 23, no. 2 (2004): 121–123.
- . “On Nuclear Deterrence and Assurance.” *Strategic Studies Quarterly* 3, no. 1 (2009): 43–80.
- . “Post–Cold War Deterrence and Missile Defense.” *Orbis* 39, no. 2 (1995): 201–223.
- . “The Case Against Nuclear Abolition and For Nuclear Deterrence.” *Comparative Strategy* 17, no. 1 (1998): 3–43.
- . “The Congressional Strategic Posture Commission Report and a Brief Assessment of Developments in U.S. Strategic Policy.” *Comparative Strategy* 30, no. 3 (2011): 193–197.
- . “The Nuclear Posture Review and Deterrence for a New Age.” *Comparative Strategy* 23, no. 4–5 (2004): 411–419.

- . “The Nuclear Posture Review: Setting the Record Straight.” *Washington Quarterly* 28, no. 3 (2005): 135–151.
- . *Deterrence in the Second Nuclear Age*. Lexington: University Press of Kentucky, 1996.
- . *The Great American Gamble: Deterrence Theory and Practice from the Cold War to the Twenty-first Century*. Fairfax, VA: National Institute Press, 2008.
- . study director. *Rationale and Requirements for U.S. Nuclear Forces and Arms Control, Vol. 1: Executive Report*. Fairfax, VA: National Institute for Public Policy, 2001.
- “PDD/NSC 60: Nuclear Weapons Employment Policy Guidance, November 1997,” Federation of American Scientists, accessed September 6, 2014, <http://www.fas.org/irp/offdocs/pdd60.htm>.
- Pearl, Jonathan. *Forecasting Zero: U.S. Nuclear History and the Low Probability of Disarmament*. Carlisle, PA: U.S. Army War College, Strategic Studies Institute, 2011.
- Perkovich, George. “The Obama Nuclear Agenda One Year After Prague.” *Policy Outlook*, Carnegie Endowment for International Peace, March 31, 2010.
- Perry, William J. *Annual Report to the President and the Congress*. Washington, DC: Government Printing Office, 1995.
- . *Annual Report to the President and the Congress*. Washington, DC: Office of the Secretary of Defense, 1996.
- Pilat, Joseph F. “Reassessing Security Assurances in a Unipolar World.” *Washington Quarterly* 28, no. 2 (2005): 159–170.
- Resolution of Ratification for the Treaty with Russia on Measures for Further Reduction and Limitation of Strategic Offensive Arms, December 22, 2010, <http://thomas.loc.gov/cgi-bin/ntquery/z?trty:111TD00005:>.
- “Review of National Defense Strategy,” Confidential, National Security Review, NSR 12, March 3, 1989, *Presidential Directives*, Part II, Item Number: PR01789. Executive Office of the President, From: Bush, George To: Quayle, J. Danforth et al., 1, http://gateway.proquest.com/openurl?url_ver=Z39.88-2004&res_dat=xri:dnas&rft_dat=xri:dnas:article:CPR01789.
- Ritchie, Nick, and Paul Ingram. “A Progressive Nuclear Policy: Rethinking Continuous–At–Sea Deterrence.” *RUSI Journal* 155, no. 2 (2010): 40–45.

- Roberts, Brad. "From Nonproliferation to Antiproliferation." *International Security* 18, no. 1 (1993): 139–173.
- Rühle, Hans. "Deterrence in an Increasingly Nuclear World." *Comparative Strategy* 32, no. 2 (2013): 93–97.
- Rumsfeld, Donald H. *Annual Report to the President and the Congress*. Washington, DC: Office of the Secretary of Defense, 2002.
- . *Foreword to Nuclear Posture Review Report*. Washington, DC: Department of Defense, January 8, 2002.
- Russell, James A., and James J. Wirtz. "United States Nuclear Strategy in the Twenty-first Century." *Contemporary Security Policy* 25, no. 1 (2004): 91–108.
- S. Hrg. 105-159: The Future of Nuclear Deterrence*. Subcommittee on International Security, Proliferation, and Federal Services of the Committee on Governmental Affairs, 105th Cong., 1st sess., 1997.
- S. Hrg. 105-587: Current and Projected National Security Threats to the United States*. Hearing before the Select Committee on Intelligence of the United States Senate, 105th Cong., 2nd sess., 1998.
- S. Hrg. 107-677: Examining the Nuclear Posture Review*. Hearing before the Committee on Foreign Relations, United States Senate, 107th Cong., 2nd sess., 2002.
- S. Hrg. 110-201, Pt. 7: Department of Defense Authorization for Appropriations for Fiscal Year 2008*. Hearings before the Committee on Armed Services, United States Senate, 110th Cong., 1st sess., 2007.
- S. Hrg. 110-205: Nuclear and Strategic Policy Options*. Subcommittee on Strategic Forces of the Committee on Armed Services, 110th Cong., 1st sess., 2007.
- S. Hrg. 111-218: The Report of the Congressional Commission on the Strategic Posture of the United States*. Committee on Armed Services, 111th Cong., 1st sess., 2010.
- S. Hrg. 111-738: The New START Treaty (Treaty Doc. 111–5)*. Hearings before the Committee on Foreign Relations, 111th Cong., 2nd sess., 2010.
- S. Hrg. 111-824: Nuclear Posture Review*. Hearing Before the Committee on Armed Services, 111th Cong., 2nd sess., 2011.
- S. Hrg. 111-897: The New START and the Implications for National Security*. Hearings Before the Committee on Armed Services, United States Senate, 111th Cong., 2nd sess., 2010.

- S. Hrg. 112-813: Examining the Proper Size of the Nuclear Weapons Stockpile to Maintain a Credible U.S. Deterrent.* Hearing Before a Subcommittee of the Committee on Appropriations, 112th Cong., 2nd sess., 2013.
- Sagan, Scott D. "The Case for No First Use." *Survival* 51, no. 3 (2009): 163–182.
- Samore, Gary. Remarks at "International Perspectives on the Nuclear Posture Review." Carnegie Endowment for International Peace, Washington, DC, April 22, 2010.
- Sauer, Tom. "A Second Nuclear Revolution: From Nuclear Primacy to Post-Existential Deterrence." *Journal of Strategic Studies* 32, no. 5 (2009): 745–767.
- Scheber, Thomas. "U.S. Nuclear Policy and Strategy and the NPT Regime: Implications for the NATO Alliance." *Comparative Strategy* 26, no. 2 (2007): 117–126.
- . "Strategic Stability: Time for a Reality Check." *International Journal* 63, no. 4 (2008): 893–915.
- Schulte, Paul. "The Strategic Risks of Devaluing Nuclear Weapons." *Contemporary Security Policy* 34, no. 1 (2013): 195–220.
- Secretary of Defense Task Force on DOD Nuclear Weapons Management. *Report of the Secretary of Defense Task Force on DOD Nuclear Weapons Management, Phase II: Review of the DOD Nuclear Mission.* Washington, DC: Department of Defense, 2008).
- Shalikashvili, John M. *National Military Strategy: A Strategy of Flexible and Selective Engagement.* Washington, DC: Department of Defense, 1995.
- Sokolsky, Richard. "Demystifying the U.S. Nuclear Posture Review." *Survival* 44, no. 3 (2002): 133–148.
- Spear, Joanna. "More Business as Usual? The Obama Administration and the Nuclear Posture Review." *Contemporary Security Policy* 32, no.1 (2011): 241–263.
- Spence, D'Anne E. "Zero Nuclear Weapons and Nuclear Security Enterprise Modernization." *Strategic Studies Quarterly* 5, no. 3 (Fall 2011): 121–133.
- Spulak Jr., Robert G. "The Case in Favor of U.S. Nuclear Weapons." *Parameters* 27 (Spring 1997): 106–118.
- Statement of Admiral James O. Ellis, Commander in Chief, United States Strategic Command.* Before the Senate Armed Services Committee on the Nuclear Posture Review, February 14, 2002.

- Stearns-Boles, Sherry L. *The Future Role and Need for Nuclear Weapons in the 21st Century*. U.S. Air Force Academy, CO: Institute for National Security Studies, 2007.
- Stewart, Courtney N. “Should the Nuclear Posture Review be Conducted More Frequently?” In *A Collection of Papers from the 2010 Nuclear Scholars Initiative*, edited by Mark Jansson, 37–47. Washington, DC: Project on Nuclear Issues, Center for Strategic and International Studies, 2010.
- “Strategic Offensive Forces and the Nuclear Posture Review’s ‘New Triad.’” National Institute for Public Policy, March 2003.
- Threat Control through Arms Control: Report to Congress*. Washington, DC: U.S. Arms Control and Disarmament Agency, 1994.
- U.S. Department of Defense. Office of the Assistant Secretary of Defense (Public Affairs). Speech, *Nuclear Deterrence Force Still Essential*. Prepared statement by Edward L. Warner III, Assistant Secretary of Defense for Strategy and Threat Reduction, Senate Armed Services Committee, March 31, 1998.
- . “November 2010 Update to the National Defense Authorization Act of FY2010: Section 1251 Report—New START Treaty Framework and Nuclear Force Structure Plans.” Washington, DC, November 17, 2010.
- . *National Security and Nuclear Weapons in the 21st Century*. Washington, DC: Department of Defense, 2008.
- . *Nuclear Posture Review Report*. Washington, DC: Office of the Secretary of Defense, 2010.
- . *Nuclear Posture Review: Implementation Plan*. February 2003.
- . *Quadrennial Defense Review (QDR) Report*. Washington, DC: Department of Defense, 2001.
- . *Quadrennial Defense Review (QDR) Report*. Washington, DC: Department of Defense, 2006.
- . *Report on Nuclear Employment Strategy of the United States*. Washington, DC: Department of Defense, 2013.
- . *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense*. Washington, DC: Secretary of Defense, 2012.
- . *The National Defense Strategy of the United States of America*. Washington, DC: Department of Defense, 2005.

- . *The Nuclear Posture Review*. Washington, DC: Office of the Assistant Secretary of Defense for Public Affairs, 1994.
- U.S. Government Accountability Office. *Nuclear Weapons: Improved Management Needed to Implement Stockpile Stewardship Program Effectively*. By Gary L. Jones. GAO-01-48. Washington, DC: Government Printing Office, 2000.
- Uemura, Robert K. *Formula for Deterrence: The Challenges of Deterring Contemporary Threats to United States National Interests*. Maxwell Air Force Base, AL: Air War College, 2008.
- Uhle Jr., William W. *The Case for Unilateral Nuclear Force Reductions*. Quantico, VA: Marine Corps Command and Staff College, 1999.
- Walton, C. Dale, and Colin S. Gray. “The Geopolitics of Strategic Stability: Looking Beyond Cold Warriors and Nuclear Weapons.” In *Strategic Stability: Contending Interpretations*, edited by Elbridge A. Colby and Michael S. Gerson, 85–15. Carlisle, PA: U.S. Army War College, Strategic Studies Institute, 2013.
- Warren, Aiden. “The Promises of Prague Versus Nuclear Realities: From Bush to Obama.” *Contemporary Security Policy* 32, no. 2 (2011): 432–457.
- Wheeler, Michael O. *The Changing Requirements of Assurance and Extended Deterrence*. Alexandria, VA: Institute for Defense Analyses, 2010.
- Woolf, Amy F. “Congress and U.S. Nuclear Weapons: Review and Oversight of Policies and Programs.” *Nonproliferation Review* 14, no. 3 (2007): 499–516.
- Yost, David S. “Analysing International Nuclear Order.” *International Affairs* 83, no. 3 (2007): 549–574.
- . “Strategic Stability in the Cold War: Lessons for Continuing Challenges.” *Institut Français des Relations Internationales*, Proliferation Papers (2011): 1–51.

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